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AUTHOR	Campbell, Philippa H.
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ABSTRACT

The monograph is intended to help parents or professionals teach severely handicapped children eating and drinking skills through the problem-oriented approach. The approach focuses on identification of the problem which restricts development of the skill, and selection of an alternative strategy for sequential teaching. The first section, on approaches to eating problems, discusses general concerns (such as prolonged infant-like feeding behavior), and approaches (such as observation and making a working hypothesis). The second section, on defining eating problems, provides charts with a step-by-step process to identify problems and evaluate selected solutions. The third section, on solutions to eating problems, presents instructions for 24 techniques, which are organized into the following main categories (examples of techniques are in parentheses): preparation (of the feeding environment, self, and of the child); direction (establish reasonably achievable goals), measuring progress; resources (persons or media materials); nutrition (provision for nutritious, tasteful food); adaptive equipment (to best position child for functions such as eating); inhibition (use of verbal direction or stimulation); facilitation (use of imitation or aid for more normal jaw movement); and reinforcement. Included are a list of resource organizations, sources of adaptive equipment, and a glossary of about 110 terms. (MC)

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PROBLEM-ORIENTED APPROACHES TO FEEDING THE HANDICAPPED CHILD

Philippa H. Campbell

Revised, September 1982

Children's Hospital Medical Center of Akron
281 Locust Street
Akron, Ohio 44308

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INTRODUCTION

INTRODUCTION

Many severely handicapped individuals, and particularly those with disorders of the motor system, have difficulty acquiring basic skills such as those involved in eating or drinking. The unique combinations of difficulties that any handicapped individual may demonstrate necessitates the development of precise and individualized programming to assist in acquisition of skills necessary for functional independence. The approach presented in this monograph is one of problem-identification and problem-solution as methods for establishing independence in eating and drinking. The same approach is utilized to assist severely handicapped students to acquire other self-care skills including self-feeding and drinking, toileting, and dressing in a companion monograph, Teaching Self-Care Skills to Severely Handicapped Students (Campbell, 1982).

The problem-oriented approach views the development of severely handicapped children as DIFFERENT from the development demonstrated by non-handicapped children. The focus is to teach the child or individual to acquire competencies in critical areas of skill development rather than to assist the child to approximate skill sequences demonstrated by nonhandicapped individuals. Problem-orientation advocates not only the identification of obstacles to skill attainment but also the implementation of solutions necessary to overcome or bypass obstacles. The only purpose of identifying a problem is to generate the solution(s) necessary to solve the problem!!

Several assumptions underly the problem-oriented approach. The first states that limitations that may be demonstrated by a severely handicapped individual preclude achievement of all skills according to the normal hierarchial sequence of development. Children with severe and multiple handicapping conditions are not nonhandicapped and may have deficits in vision, hearing, other senses, and/or movement. Subsequently, they may not attain all skills in the exact sequence demonstrated by non-handicapped children.

A second assumption is that skills which precede the development of other skills in the sequence of normal development are not necessarily prerequisite to the development of later skills. For instance, nonhandicapped children can typically chew before acquiring self-feeding with the fingers. Chewing, however, is not a prerequisite to self-feeding and severely handicapped children can be taught self-feeding of foods such as applesauce or pudding before acquiring chewing. The normal sequence, that demonstrated by nonhandicapped children, does not always provide the order in which skills should be taught to the child with severe handicaps.

Severely handicapped children must be taught (or trained) in order to acquire skill competency. Methods used to teach handicapped children may be different from those methods by which nonhandicapped children acquire the same skills. Nonhandicapped children acquire oral-motor competency in chewing, swallowing,

sucking, biting, and other skills with a minimum of instruction (or training). However, severely handicapped children may only learn these skills when parents and professionals develop systematic intervention programs. A third assumption underlying the problem-oriented approach emphasizes the importance of instructional intervention in demonstration of oral-motor skills.

Some children with severe motor dysfunction may never be able to precisely control tongue movements or carefully coordinate respiration with phonation. The severity of the motor dysfunction may preclude acquisition and competent performance of these as well as other oral-motor skills. Deficits in skill attainment may always be present when compared with skill competency demonstrated by a nonhandicapped person of the same chronological age. However, problems with critical skills can be overcome either through training or by bypassing the needed skill with alternate strategies. For instance, drinking through a straw (using lip closure and not biting) can bypass hand-to-mouth movement required to bring a cup to the lips to drink. Using various types of infant feeding nipples can help to identify a nipple that will compensate for poor mouth closure or lack of suction. The fourth assumption states that the programming provided for a severely handicapped child should provide alternate strategies to assist the child to acquire skill competency.

This monograph is organized into five sections that are designed to be used by parents or professionals who wish to change the ways in which handicapped children manage foods and liquids in order to assist those individuals to acquire as normal eating and drinking strategies as possible. The first section, Approaches to Eating Problems, discusses some of the general concerns and approaches to individuals with problems eating or drinking. Defining Eating Problems provides charts outlining a step-by-step process to help precisely identify the particular problem(s) influencing acquisition of more appropriate eating skills. The charts help direct the parent or professional to the variety of solutions that can be attempted to overcome the identified problem with eating. The third section, Solutions to Eating Problems, describes a variety of techniques to help teach oral-motor coordination required for eating and drinking. In the fifth section, Additional Resources, other written materials that may be helpful in working with children with feeding disorders are described. In addition, a list of organizations that may also be helpful resources for additional information is provided as are names of companies that deal in adaptive equipment. In the final section, Glossary, a list of terminology typically used in describing severely handicapped children with movement disorders is provided. This glossary specifically defines some of the terms that are often confusing when identifying problems with eating and drinking.

To use this manual most effectively, read through the sections on approaches and solutions to familiarize yourself with the approach used to identify feeding problems and their solutions. Terminology that is confusing can be clarified by looking up words in the glossary. Then, follow the charts that outline some of the various difficulties that are demonstrated by individuals with feeding disorders with each individual for whom you wish to teach more efficient ways of eating and drinking. For instance, if positioning is a problem with a particular individual, identify proper positioning for the person by following the sequence charts for Problem #2, The child is difficult to position properly. If the person with whom you

are working does not drink properly from a cup, follow the charts for Problem #5, The child does not drink properly from a cup. Following the sequences outlined in each of the key problem areas will access you to solutions to use in order to intervene with that individual. The specific description of procedures can be found in the third section. Implementing these procedures will enable you to teach more normal eating and drinking skills to individuals having difficulty acquiring normalized ways of eating and drinking.

Mealtimes are a pleasant time for most of us -- in terms of enjoying particular foods as well as for the social interaction that occurs during eating. In addition, in general, eating is something that most of us do fairly frequently -- in most instances, at least three times per day!!

The techniques described in this manual are those that are easy to follow from written instruction. However, there are other techniques that might be implemented if those described fail to produce the desired effect. Dietitians, occupational, physical and speech therapists, nurses, and teachers often have been trained to work with handicapped children with feeding disorders. Consultation with some of these individuals can help you discover and create other techniques that might be more helpful with your child than those included in this guide. This materials is not the "final word" on how to feed difficult children. Rather, it is an attempt to help you identify problems and solutions related to oral-motor coordination for eating and drinking. New techniques that may make obsolete or improve some of those described in this manual are yet to be generated by individuals like you, needing "solutions" to oral-motor problems!

APPROACHES TO EATING PROBLEMS

APPROACHES

TRITE IDEAS THAT CAN BEAR REPEATING

The remediation of feeding difficulties requires not only an assessment of the problems demonstrated by a particular child but also INTERFACE of that process with the ENVIRONMENT in which eating occurs. Successful intervention includes attention to the CHILD, to the MEALTIME ENVIRONMENT, and to the INTERFACE BETWEEN THE CHILD AND THAT ENVIRONMENT. Successful feeding programs are those where intervention is directed to ALL ASPECTS OF THE EATING SITUATION.

PEOPLE are part of the MEALTIME ENVIRONMENT. Effective intervention, therefore, includes the people in the MEALTIME ENVIRONMENT. Feeding difficulties will be effectively remediated only to the extent that other individuals are INCLUDED AND INSTRUCTED in appropriate feeding techniques for the child-problem situation. The individuals with primary responsibility for feeding a particular child, typically parent(s) or direct care staff, can offer valuable input to the assessment of the feeding problem. Knowledge of food likes/dislikes, texture or temperature preferences, and particular coordination difficulties can be provided by these individuals. However, more important is that the intervention designed to remediate the feeding difficulties MUST BE IMPLEMENTABLE BY THE PERSON RESPONSIBLE FOR DAY TO DAY FEEDING.

Any individual, regardless of expertise with feeding techniques, will be effective in remediating difficulties only to the extent that the problem is CORRECTLY IDENTIFIED. In other words, "treatment" (techniques) will only be effective if the "diagnosis" (identification of the problem) is correct. However, once selected and tried, the feeding techniques must be, <u>at least</u> SUBJECTIVELY EVALUATED. Just because a particular technique is supposed to be effective in a given situation does not insure that the technique will be effective when applied with a particular child.

There are many feeding techniques. Some are appropriate for some child-problem situations but FEW ARE APPROPRIATE FOR ALL CHILD-PROBLEM SITUATIONS. You will be effective with feeding remediation only to the extent that you are able to accurately SELECT AND EVALUATE feeding techniques when used with a particular child. When the technique(s) that has been selected is not working, select another technique to remediate the problem and/or go back and EVALUATE to insure that the problem has been correctly identified.

Feeding techniques should have an IMMEDIATE IMPACT on the feeding situation. The behavior of the child should CHANGE as a result of using a particular technique. Don't wait for weeks and weeks of intervention to determine if the selected technique is effective. Another technique may need to be used to ALTER CHILD BEHAVIOR. Waiting several weeks before selecting, implementing, and evaluating another technique "drags out" the treatment process and wastes valuable time -- YOUR TIME AND THE TIME OF THE CHILD!

EATING IS PLEASANT?

Most of us enjoy eating -- the experience of trying different foods, of eating with different individuals. We look forward to eating experiences. For the child who has to "struggle" to eat, who has difficulty getting the food, who chokes frequently, or has other problems, eating may not be the enjoyable experience that it is for persons who eat easily. It may also not be an enjoyable experience for the child who has to wait his turn to be fed, who eats only in a chaotic environment, who is fed unpalatable foods. EATING CAN BE A CHORE!

FEEDING PATTERNS are established early in infancy between the child and the persons who feed him. Many children with feeding problems in infancy have other health problems as well -- making the NEED for the child to eat ESSENTIAL. Adults react to the knowledge of food as a health need to a greater extent than do most children. Adults KNOW that the child will suffer if she/he does not get a proper amount of food. Adults may be OVER-CONCERNED, OVER-REACTIVE, and PRESSURED. The feeding situation soon develops as STRESSFUL for both the child and the adult, considerable PRESSURE is put on the child to be successful in eating, and both child and parent(s) come to DREAD the feeding process.

APPROACHES:

Recognize that ATTITUDES concerning feeding may be well established by parent-child or by caretaker-child. ATTENTION to attitudes may have to precede ATTENTION to feeding behavior.

TRY to intervene in the feeding situation EARLY -- before attitudes and stressful interaction become fixed.

DEVELOP a pleasant environment for feeding -- not just the physical environment but the social interaction environment as well.

RECOGNIZE, ACCEPT, and MODIFY the concerns about eating -- eating may be difficult because of oral pathology or because of psychological concerns such as resistance to change, fear of change, fear of the unknown. Consider the child's needs.

WAIT ON ME -- I'M RICH!

OR

THE PROBLEM OF DEPENDENCY

DEPENDENCY ----- WHOSE? Persons with severe handicaps may be dependent on other individuals for basic care needs (including feeding) for their entire lives. Some persons ACCEPT this dependency. Some simply RESENT but maintain the relationship. Still others struggle indefinitely for the satisfaction of self-accomplishment. For these individuals, the personal "pay-off" is great enough to warrant the excessive MOTIVATION, PERSISTENCE, and PERSEVERENCE that simple accomplishment can demand. Some individuals "see" no "pay-off" in struggle or don't persevere or persist to the extent that others are able.

Some children LEARN DEPENDENCY. The so-called over-protective parent is often thought of as fostering dependency. More often, DEPENDENCY RELATIONSHIPS grow out of IGNORANCE or lack of knowledge of what is reasonable behavior for the child to demonstrate. Some parents don't have a realistic idea of what the child is capable of achieving nor do they have clear cut ideas of what the child might perform as an adult. DEPENDENCE on another person can be developed for lots of reasons, but once developed and ingrained as an EXPECTANCY or GIVEN, dependency can become a "HABIT" and an obvious OBSTACLE TO INDEPENDENCE.

For some adults, life's "meaning" is related to the amount of dependence that others have on that adult. Some employees who work with severely handicapped individuals, have job descriptions that require caring for other persons. A successful employee may be measured by the number of persons to whom that employee provides total care. A host of other reasons, besides job responsibilities, could be generated to account for an adult's need for dependency. The important thing is that children and adults can be MADE DEPENDENT THROUGH AN ADULT'S NEED rather than through the needs of the child.

APPROACHES:

RECOGNIZE the DEPENDENCY RELATIONSHIP and ACKNOWLEDGE that the relationship will effect BOTH the CHILD'S and the CARETAKER'S ABILITY TO ACQUIRE AND APPLY NEW SKILLS CONCERNING FEEDING.

ANALYZE the DEPENDENCY RELATIONSHIP --- Does the adult have a need for someone to be dependent on him/her? Does the child show dependency or is it the caretaker or certain family or staff members who need to care for a dependent child?

IDENTIFY SPECIFIC CONDITIONS: Recognizing that the child is dependent alone does not provide as precise an intervention strategy as knowing that the child id dependent on his mother to feed him breakfast so that he doesn't miss the bus for school. TRY to identify ON WHOM the child is dependent FOR WHAT and UNDER WHAT CONDITIONS.

I'M NOT DOING IT ON PURPOSE-- OR AM I?

REMEMBER YOUR LIMITATIONS!! Some DEPENDENCY RELATIONSHIPS are more successful than maintained behavior/"habits". KNOW what resources -- such as a social worker, psychologist, parent group -- are available in your facility and in your community. KNOW WHEN TO REFER THE PROBLEM TO SOMEONE ELSE!!

When feeding difficulties PERSIST, questions concerning WHY the child is doing what he is doing often arise. Parents and/or others involved in feeding the child may become frustrated by the child's lack of "cooperation", inability to eat well or to make progress in eating and may CREATE and ASCRIBE "reasons" to account for frustration. Often persons ASCRIBE some "motivation" or intentionality to actions which may be beyond the child's voluntary control without having full knowledge or understanding of the feeding process. Difficulties become MAGNIFIED and frequently make the feeding situation even more unpleasant, stressful, and tense when the parent or individual feeding the child demands more control over actions than what the child is able to perform. Similarly, a child may perform actions which are intentional which can become identified as uncontrollable by the child. ATTEMPTING to ACCURATELY SPECULATE/IDENTIFY WHY the child is demonstrating certain behavior is ESSENTIAL in selecting the correct approaches to remediate the difficulty.

OCCASIONALLY --- MEDICAL REASONS may accoutn for the child's inability to eat or drink well. Anatomical deviations in the oral structures may be present and account for problems in lip and tongue movement and in swallowing. Children with multiple congenital deformities often have internal or external abnormalities which can effect the child's ability to eat. Allergies can also be present in children/adults. Most often, the presence of food allergies will effect the types of food which the child will accept or if the child becomes ill from certain foods, may condition a "feeling" of eating as unpleasant. This is particularly obvious in infants with allergies to milk.

DENTAL ABNORMALITIES --- can effect the child's oral sensitivity and his ability to chew. Children who are receiving medication for control of seizures frequently have oral hypersensitivity to taste, texture, and temperature as a result of hypertrophied gums. In addition, children with severely hypertrophied gums often have difficulty chewing anything but semi-solid foods. POOR DENTAL CARE, in general, can be significant enough to cause the child to have difficulty managing foods and liquids.

CONGESTION --- may be present because of MEDICAL REASONS or may occur in response to certain foods. Mild and milk products (such as ice cream) frequently exaggerate a medical problem with congestion and make the child more likely to choke or to aspirate.

ASPIRATION --- most frequently occurs when the child has difficulty with breathing or with coordinating breathing and eating. When the child aspirates, he is trying to "dislodge" liquids and foods which have entered the lungs instead of the stomach. ASPIRATION most often occurs in children with medical problems, when the child is not positioned for feeding, and/or fed liquids and foods properly.

FEEDING is a COMPLEX PROCESS . . . and one that is frequently manipulated and/or made more difficult by the child's voluntary behavior. Some children have difficulty achieving eating, drinking, and self-feeding independence solely due to inappropriate behavioral responses and/or the presence of behavioral responses that interfere with the acquisition of responses necessary to acquire eating, drinking, and self-feeding skills.

APPROACHES:

If possible, ACQUIRE DETAILED KNOWLEDGE about the child's FEEDING HISTORY. Knowledge of information such as WHEN the FEEDING PROBLEM BEGAN, WHAT MEDICAL CARE the child has received concerning his feeding, WHAT has been tried already to remediate the situation, and HOW the child is USUALLY FED can provide a starting point for the assessment process. "HISTORICAL INFORMATION" is accessible through the child's file, medical reports, through social service history, or you can directly question the appropriate persons. Try to ask questions related specifically to eating. Other information such as pregnancy history, may not have bearing on the eating problems and is always available in records. Restating "history" again and again may not only be boring for parents, but may also be emotional.

Determine to what extent the problem is medically or behaviorally based:

1) MAKE TENTATIVE-WORKING HYPOTHESES:

To what extent might the child's behavior be MEDICALLY BASED?
To what extent might the child be demonstrating FUNCTIONALLY INAPPROPRIATE BEHAVIOR?
To what extent might ORAL PATHOLOGY be contributing to the child's inability to eat properly?

2) "RULE OUT" THE POSSIBLITY OF MEDICAL PROBLEMS:

Consult the child's physician to determine if medical problems can be "responsible" for specific difficulties that are demonstrated with feeding.

3) SELECT APPROPRIATE INTERVENTION TECHNIQUES:

Some change in feeding behavior caused by ORAL PATHOLOGY should occur when neurologically-oriented facilitation/inhibition techniques are used to provide remediation. However, generally these techniques will be ineffective when used to remediate difficulties that are behavioral in origin or non-compliant based response patterns.

4) EVALUATE EFFECTIVENESS OF CHANGE IN FEEDING BEHAVIORS:

The effectiveness of the feeding techniques chosen to remediate specific difficulties will give some insight into whether the original "tentative-working decision" was correct. If some progress is not demonstrated within a reasonable amount of time, the TENTATIVE-WORKING hypothesis should be RE-EVALUATED and REVISED.

If the child is to learn to eat better, it is ESSENTIAL that the "BEST" FEEDING TECHNIQUES to remediate the difficulty are chosen. It is feasible to speculate as to the cause of the feeding problems since largely those problems will classify as MEDICAL PROBLEMS, ORAL PATHOLOGY, or NON-COMPLIANT BEHAVIOR. In some instances, the process is no more than speculation -- you may never POSITIVELY know WHY. Some attempt at identifying WHY is essential in developing an effective and efficient feeding plan.

LABELS MAY NOT BE HELPFUL

The intervention for individuals with movement disorders originating from neurological dysfunction has traditionally been based on LABELING (or "diagnosing") observations of tone and patterns of movement. However, more recent approaches toward intervention have decreased the emphasis on labels while increasing needed accuracy in behavioral observations. A label, for instance, of spastic cerebral palsy is a medical diagnostic label that does not provide the degree of accuracy in observation necessary to develop and provide specific remediation and treatment programs. Similarly, a label of tongue thrust may not really be helpful in planning intervention strategies. More beneficial are the observations that indicate that tone is high in the tongue and that movement consists of a pulling back (retraction) of the tongue in combination with a forward movement that extends the tongue past the lips in a primitive and poorly coordinated movement.

A great deal of emphasis has been placed on labeling related to feeding disorders (Morris, 1978; 1982) and on differentiating "normal" and "atypical" movement patterns (Morris, in press). However, these classifications, while probably helpful in better understanding movement disorders, are not of much assistance to the individual responsible for feeding a child or adult with difficulties with eating and drinking. The GLOSSARY, included at the end of this monograph, provides definitions associated with typical labels used to describe movement disorders originating from neurological impairment. However, the information provided throughout this monograph is designed to help you remediate feeding disorders through observation of behavior rather than through labeling of specific problems. In a pragmatic sense, whether the child has a biting reflex, a tonic bite, or is simply biting the spoon is not as important to remediation as are the techniques necessary to develop appropriate and coordinated movement of the jaw necessary for graded jaw movements for both eating and drinking.

PRETENDING TO BE A BABY

The mother of a child who has had difficulty with eating in the newborn or early infancy period may not introduce new feeding substances because she may fear choking or may assume that the child will be unable to eat different types of foods. Many children are fed infant-like foods long past the period in which a mother would typically introduce more solid foods. Many severely handicapped children who could, despite poor coordination and atypical muscle tone, manage more solid foods are not given those foods to see how well different foods will be eaten. Or, the child may be treated as an infant in feeding situations because she/he does not demonstrate gross motor, cognitive, or language skills indicative of chronological-age "readiness". These conditions of PROLONGED INFANCY can cause a child to demonstrate infant-like behavior -- not only in eating but in other developmental areas, as well.

PROLONGED USE OF INFANT-LIKE FEEDING SKILLS can occur separately from atypical muscle tone and coordination in the oral-motor musculature or IN COMBINATION with these problems. Most children will demonstrate some ATYPICAL patterns as well as some PRIMITIVE PATTERNS -- particularly if more solid foods and/or taking liquid from a cup have not been introduced. However, children with SEVERE DEVIATIONS IN MUSCLE TONE and COORDINATED PATTERNS OF MOVEMENT may show a greater number of ATYPICAL PATTERNS. Children with delay in acquiring overall movement competency (such as those with developmental delay or psychomotor retardation) may tend to demonstrate more PRIMITIVE than ATYPICAL PATTERNS.

APPROACHES:

DETERMINE TO WHAT EXTENT PATTERNS ARE PRIMITIVE OR ABNORMAL:

1) OBSERVE HOW the child handles foods and liquids of varying substances. DESCRIBE what he does with his jaw, lips, tongue, and teeth while he is eating and drinking. (It is not important to be able to LABEL (such as tongue thrust) the pattern but it is ESSENTIAL to be able to DESCRIBE the movement pattern.)

2) MAKE TENTATIVE-WORKING HYPOTHESES:

To what extent do the patterns appear to be associated with degrees of abnormal muscle tone or with particular body positions? Do the patterns change if the child's position, or in particular, the position of the head is changed? What other types of developmental problems does the child show? What have been the child's previous experiences with food? Has he always been fed strained or bland foods? Has he received all liquids from a bottle or all foods through a tube?

3) SELECT APPROPRIATE INTERVENTION TECHNIQUES:

Change in motor patterns in the oral musculature should occur as a function of varying the types of food and liquid substances which the child receives if the patterns are largely primitive. Abnormal patterns may be more persistent to immediate change and may require use of specific stimulation and inhibition techniques.

MY HEAD IS ATTACHED TO MY BODY

The FEEDING PROCESS requires taking foods or liquids into the mouth, managing those substances once in the mouth, and swallowing them. These basic skills require NORMALIZED MUSCLE TONE, a high degree of precise COORDINATION, and a "PLAN" for how the muscles should move in order to produce movement patterns. The muscles of the oral musculature typically will have similar types of incoordination as that which is present throughout the body if the individual has some type of movement disorder.

Certain TYPES OF DYSCOORDINATION are associated with deviations in muscle tone. This combination of DYSCOORDINATED MOVEMENT with MUSCLE TONE DEVIATION often produces ATYPICAL movement patterns in eating and drinking (Campbell, 1979; Morris, 1982). A child may acquire ATYPICAL PATTERNS in the muscles of the mouth if problems are severe at birth or early in life. These ATYPICAL PATTERNS may seem "NORMAL" to the individual and the constant reinforcement of these patterns through eating makes it more difficult to teach the child to learn to eat with more normalized COORDINATION.

MUSCLE TONE in children with neurological impairment can range from too little tone (HYPOTONUS) to too much tone (HYPERTONUS). Some children may have high tone that is PATHOLOGICAL or SPASTIC. Other children may acquire and use HYPERTONUS as a method of providing postural fixation (stability) against gravity. Most children with neurological impairment will have two different conditions of MUSCLE TONE. One is described as UNDERLYING TONE, the tone of the muscles at rest or without active movement. The other condition is described as PREDOMINANT TONE, the tone of the muscles when the child is moving and/or engaging in interaction with the environment. Some children have MUSCLE TONE that fluctuates and is not the same under UNDERLYING and PREDOMINANT CONDITIONS. For instance, a child may show basically low tone, but when moving, tone becomes high. The muscle tone of such a child would be described as low UNDERLYING tone with PREDOMINANT hypertonus.

MUSCLE TONE provides the basis or the background of movement throughout the body. Therefore, when muscle tone is atypical, the coordination of movements made on the basis of that tone is also likely to be atypical. Movements that are performed repetitively become practiced and habitual. Practice, in other words, strengthens or increases the movement patterns -- whether those patterns are labeled as NORMAL or ATYPICAL. Movements that are performed incorrectly (but that are practiced) can lead to further problems. RANGE OF MOTION may become limited at specific joints of the body and DEFORMITIES of muscle tissue, joints, and bones can result. Those secondary problems can occur throughout the body -- including the muscles of the face, throat, and neck areas that are involved in eating and drinking.

The following chart is a GUIDE to understanding the relationships between feeding difficulties and the overall TONE and COORDINATION present throughout an individual's body. THE CHART IS A GUIDE -- ONLY!! ALL CHILDREN WILL NOT FOLLOW THESE PATTERNS EXACTLY.

APPROACHES: Atypical movement (oral pathology) can be modified through use of the following approaches:

PROPER POSITIONING: This is the FIRST and an ESSENTIAL step in the feeding process. The child will be better able to learn/develop those oral skills required for eating if positioned in a way that normalizes muscle tone. Improper positioning can exaggerate ORAL PATHOLOGY and subsequently make it very difficult and/or impossible for the child to eat.

POSTURAL TONE	POTENTIAL PROBLEMS	POSSIBLE MOVEMENT DIFFICULTIES	POSSIBLE EATING PROBLEMS
Underlying LOW TONE (Hypotonus) with predominant LOW TONE.	Limited postural stability with use of atypical fixations to achieve stability -- e.g. hyperextension of the neck to achieve head stability, anterior/posterior tilt of the pelvis to achieve trunk stability (tilt dependent on position), etc.	Lack of graded movement Movement against gravity Primitive movements Lack of finely controlled movements	Poor control of jaw Mouth closure against gravity Suckling response Limited tongue movements Poor coordination of tongue, lips, jaw, swallowing, etc.
Underlying LOW TONE with predominant HIGH TONE (Hypertonus or pathological spasticity).	Limited postural stability, particularly in trunk area or proximally with use of atypical fixations to achieve stability -- hyperextension of the neck, limited head flexion on the cervical spine, possible asymmetrical movement of the head, anterior/posterior pelvic position (dependent on sitting position); Possible increased tone in legs to provide fixation at pelvis.	Limited movement ("blocked" movement) with limited ranges of joint movement Elevation of shoulders with forward scapular tipping and/or retraction, causing potential problems with breathing and swallowing.	Jaw protrusion (stiff) Difficulty with mouth opening/closure Limited jaw range of motion Lip retraction Thrusting of jaw (with high tone) Biting (atypical) Breathing Swallowing Aspiration Chewing Coordination of oral muscles and structures

SOME Examples of Ways in Which Postural Tone, Movement, and Eating are Related ***

***This chart provides only two examples of ways in which movement and eating/drinking movements are related. Relationships need to be worked out for individual children on an individual basis.

TASK REQUIREMENTS: A task that is too difficult for the child may produce associated reactions, an automatic reflexive response that may cause difficulty for the child in eating and drinking. Providing the child with foods that are too hard to manage may only increase the associated reactions and make feeding more difficult.

SPECIFIC TECHNIQUES: Often the ORAL PATHOLOGY can be modified by the person feeding the child by providing tactile/kinesthetic cues, by use of stimulation or inhibition techniques, and by proper preparation of the child and of the oral musculature for feeding. SELDOM is VERBAL DIRECTION effective alone in helping the child develop more effective or efficient patterns of eating. Verbal Direction can be used simultaneously with other techniques to provide additional input through another channel but, if used alone, it often serves to REINFORCE ATYPICAL PATTERNS OF EATING rather than to remediate those patterns.

I CAN'T BREATHE!!!

The child has to be able to coordinate the oral musculature with the RESPIRATION mechanism in order to eat and drink normally. It is likely that the child will also have difficulty coordinating breathing with eating or drinking if the child has difficulty with breathing itself.

Many children (with and without neurological involvement) are MOUTH BREATHERS. Mouth breathing often occurs in combination with severe congestion which makes it impossible to breathe through the nose, in combination with abnormal breathing patterns, or as a "habit". Some children are inconsistent -- occasionally breathing through the nose, occasionally through the mouth. Choking or aspiration may result from breathing through the mouth when eating or drinking and as a result of poor coordination between respiration and feeding or when trying to eat or drink and breathe at the same time.

Children and adults with severe handicaps usually have atypical patterns of respiration. In some instances, primitive patterns of breathing are present. In other instances, breathing can be affected by stiffness (increased tone) or by lack of stability in the trunk musculature (low tone). Breathing can be shallow and/or can occur at increased rates.

APPROACHES:

Specific problems with RESPIRATION are often difficult to both recognize and identify. TREATMENT of RESPIRATION DIFFICULTIES can be complex. If you suspect RESPIRATION DIFFICULTIES and/or DIFFICULTIES COORDINATING RESPIRATION AND FEEDING in a child:

ASK for help from a speech therapist, physical therapist, or respiration therapist.

CHECK positioning -- positioning on the back for feeding exaggerates respiration problems.

CAREFULLY OBSERVE and IDENTIFY under what conditions the child has the greatest difficulty.

MONITOR your use of FEEDING TECHNIQUES that obstruct breathing through the mouth.

THINGS IN MY MOUTH? -- UGG!! (OR YUM)

ORAL/HYPO/HYPERSENSITIVITY can be a severe obstacle in developing more normal patterns of eating or drinking. The oral cavity contains numerous sensory nerve endings, which in addition to providing "guidance" to the muscles, are directly related to perception of substances in and around the mouth. It is generally believed that these nerve endings are easily stimulated at birth and during early infancy and that through the child's early experiences of playing with his mouth, plasing his fingers in his mouth, and "mouthing" toys or other objects, these nerve endings become "normalized" and less easily stimulated.

ORAL HYPERSENSITIVITY can be present due to lack of stimulation around the mouth or in association with abnormal muscle tone. Children with severe physical handicaps often are unable to move the hands to the mouth and subsequently are deprived of "stimulation experiences" with which a normal child provides to himself. ORAL HYPERSENSITIVITY more typically occurs in combination with spasticity (or increased muscle tone) than with hypotonus, however, sudden stimulation around or in the oral area can produce exaggerated motor responses in the hypotonic child or child with fluctuating muscle tone or in the child who has retained a startle or Moro response.

Some children spend excessive amounts of time in "mouthing objects". The normally developing child "mouths" objects for only about one or two months and this "mouthing" is seldom seen as the child's ONLY method of relating to and discovering qualities of objects in his environment. Excessive or PROLONGED "MOUTHING" appears to over-stimulate the nerve endings in the oral cavity and to produce HYPERSENSITIVITY for other substances placed in the mouth.

Conditions of ORAL HYPERSENSITIVITY often have "easy" GAGGING associated with them. The GAG REFLEX is an essential life reflex which is present at birth and throughout life. The reflex response is strong and easily elicited at

birth if the child is stimulated in the front of the mouth. As the child develops and experiences different substances in his mouth, the GAG REFLEX becomes "normalized" so that it is not as easily activated as in infancy. The response is not present unless food "gets stuck" in the back of the throat or liquid "goes down the wrong throat" in adults. Children with ORAL HYPERSENSITIVITY often continue to GAG when stimulated in the front of the mouth or with sudden stimulation.

The inside of the mouth is one of the most sensitive areas in the body to stimulation. Children with mild neurological dysfunction or with lack of experience may develop (or have present at birth) "mis-perceptions" about incoming stimulation. A normally developed individual has two tactile systems; one of which is phylogenetically older and which in animals and in early infancy acts as a life-saving system providing "fight-flight" information. A higher order system which is more functional in humans provides tactile information of a discriminatory nature -- information as to where the person has been touched, etc. Observations show that the perceptions of tactile stimulation of some children appear more like those of "fight-flight" than those of discriminatory perception. This problem is frequently referred to as TACTILE DEFENSIVENESS and often is misinterpreted as ORAL HYPERSENSITIVITY. A child who reacts DEFENSIVELY to tactile stimulation on the body may be even more "DEFENSIVE" in the oral area since this area is more sensitive to incoming stimulation than other body areas.

True conditions of ORAL HYPOSENSITIVITY are seldom observed in children other than very passive infants or those with severe hypotonia. ORAL HYPERSENSITIVITY can also occur as a result of MEDICAL PROBLEMS -- there may be inappropriate nerve supply to the oral cavity or brain damage in an area that affects nerve transmissions to the oral cavity. It may be difficult to elicit a GAG REFLEX or the child may have problems with coughing if oral hyposensitivity is present. Generally, motor movement is also quite limited -- both in quantity of movement and in quality of movement patterns.

APPROACHES: A "logical" remedial approach to ORAL HYPERSENSITIVITY might involve providing stimulation to the mouth area since ORAL HYPERSENSITIVITY becomes "normalized" through tactile stimulation which the normal child himself provides. VERY GENERALLY, this is the case. However, there are DIFFERENCES between the normal and the dysfunctioned child which must be taken into account when remediating ORAL HYPERSENSITIVITY.

1) ABILITY TO RESPOND TO STIMULATION IN A NORMAL MANNER:

The normally developing child has a Normal Response Mechanism -- or the ability to respond motorically in a normal manner. The dysfunctioned child DOES NOT have the ability to respond normally -- some children may respond with startle and/or Moro responses, others with other forms of primitive and/or abnormal patterns of movement. Providing tactile stimulation in such a manner that the child can only respond atypically will REINFORCE ABNORMAL PATTERNS and subsequently hinder attempts to teach the child more normal oral-motor coordination.

2) QUANTITY AND QUALITY OF TACTILE STIMULATION:

Oral hypersensitivity is normally modified through the child's provision of stimulation to the oral area. The CHILD has CONTROL over both the QUANTITY and the QUALITY of that stimulation. He provides only the type and amount of stimulation which he can "tolerate". The child who is being stimulated by another person does not have his own control over the stimulation provided. Grading stimulation by allowing the child to respond correctly to successively different amounts and types of stimulation will allow the person providing that stimulation to perform the controlling function provided by the child himself under more normal conditions.

3) When REMEDIATING the possibility of ORAL HYPERSENSITIVITY:

RULE OUT the possibility of MEDICAL PROBLEMS.

INSURE that the child will ONLY be able to RESPOND motorically in as normal a manner as possible. Tactile/kinesthetic cues which provide "external guidance" are often helpful in controlling and modifying response patterns.

DON'T OVERSTIMULATE!! Provide ONLY the QUANTITY and QUALITY of stimulation to which the child can respond normally. This will REQUIRE both careful ASSESSMENT and CONSTANT MONITORING of the input-response process.

4) REMEMBER that you are doing something to the child over which he has no control. Be considerate of his "tolerance" to the activity and mindful of the effects that it might have on his social and emotional well-being.

The child's ability to respond in a normal manner is also hindered because of "misperception" of the incoming stimulation if he is also TACTILE DEFENSIVE. Further confounding may occur if the child also has physical involvement that limits normal motor responses.

1) When providing TACTILE STIMULATION, begin where the child is most able to receive and interpret the stimulation in the most mature manner. Generally, these are the areas that are least "sensitive" to stimulation -- for instance, the back, the arms, the legs.

2) Carefully control the QUANTITY and QUALITY of the tactile stimulation so that more normal responses are possible. With TACTILE DEFENSIVE children, areas in and around the MOUTH should only be stimulated AFTER the child has learned to appropriately integrate and respond to tactile stimulation provided in less sensitive areas. LIGHT TOUCH is generally more stimulating than FIRM TOUCH. GRADE the QUALITY of stimulation provided -- again to INSURE as normal INTEGRATION and RESPONSE as possible.

Problems of true ORAL HYOSENSITIVITY often require guidance from the physician (if medical limitations are involved) or from the speech or occupational therapist. Often, very careful NEUROLOGICAL ASSESSMENT is required in order to determine what types and amounts of stimulation will generate a response. Usually, the types and amounts of stimulation chosen will be not only "strong" but also those that are specific to modifying and/or stimulating the neurophysiological systems. Accurate use of these techniques requires extensive knowledge of neurophysiology, careful assessment, and detailed monitoring of input.

I'LL DO IT MYSELF, THANK YOU!

OR

WHAT TO SACRIFICE WHEN?

Parents and educators, as well as other individuals, often are more concerned by the child's difficulty in achieving "milestone" developmental skills than by the manner in which the child is able to perform developmental skills. Therapists frequently attend more to how the child performs the skill than to whether he has "passed" that developmental milestone. The quality of movement that the child attains is more significant than his skill attainment at any given chronological age for physical, occupational, and speech therapists. For instance, it is generally more important that the child learn to walk using as normal patterns of movement and muscle coordination as possible than that he learn to walk between 12 and 15 months of age.

When a child has difficulty with oral coordination skills necessary for proper eating and drinking, teaching the child to SELF-FEED may make his achievement of normal patterns of oral movement for eating more complex -- or impossible. Simply teaching a child "too much at one time" may make the final outcome poor or may prolong the time necessary for the child to learn the required skills. On the other hand, some children may never learn "normal oral-motor coordination" skills and the child's acquisition of self-feeding may be postponed -- preventing the opportunity for the child to acquire independence and inhibiting his social-emotional growth.

APPROACHES:

When to TEACH SELF-FEEDING skills is, at best, a COMPROMISE. Oral-motor coordination may be compromised for a healthier self-image, for the feeling of achievement, for independence. Later speech development or clarity in speaking, a result of normal patterns of movement in the speech musculature, may be sacrifided for those "satisfactions" which the child may attain through self-feeding. The DECISION as to when to begin self-feeding must be made on an INDIVIDUAL BASIS rather than from "rules" governing developmental skills. The child's needs MUST BE PRIORITIZED with consideration given to the environment in which he is currently functioning. Some prerequisite skills, however, can be identified:

MENTAL AGE is a poor prerequisite. Severe mental retardation and/or severe receptive language problems may make the teaching of self-feeding more complex BUT severe mental retardation by itself, IS NOT reason enough for a child not to acquire self-feeding skills.

The child should be able to MOVE HIS HAND TO HIS MOUTH -- either by himself or through the use of ADAPTIVE EQUIPMENT. If the child is unable to BALANCE VERY WELL in sitting, he will have difficulty with arm movement. Sitting balance should be secure -- with ADAPTIVE EQUIPMENT if the child does not have excellent balance in sitting.

Skills, which the normally developing child would have achieved prior to developing self-feeding abilities, ARE NOT NECESSARILY PREREQUISITE SKILLS FOR SELF-FEEDING. Skills such as poor grasp may not necessarily mature spontaneously in the child with dysfunction and can frequently be by-passed through the use of ALTERNATIVE STRATEGIES such as adaptive equipment.

DEFINING FEEDING PROBLEMS

DEFINING FEEDING PROBLEMS

The PURPOSE of this section of the manual is to provide you with diagrams that will allow you to identify key problems that are the basis of feeding difficulties with the child(ren) for whom you are interested in providing intervention.

The INFORMATION is divided into FIVE KEY PROBLEMS. These are:

#1: THE APPROPRIATE ENVIRONMENT

#2: THE CHILD IS DIFFICULT TO PROPERLY POSITION

#3: THE CHILD REJECTS FOODS AND/OR LIQUIDS

#4: THE CHILD DOES NOT CHEW

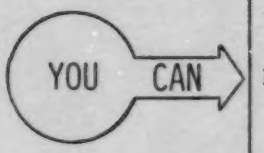
#5: THE CHILD DOES NOT DRINK FROM A CUP

Each of these problem areas includes a series of diagrams that will help you identify where to begin programming. Once you have identified the skill area in which to begin working, use the correct diagram to help you identify the possible factor(s) that is influencing acquisition of the particular skill. The factors are tied to possible solutions (intervention techniques) and referenced into the "Techniques --- Possible Solutions!!" section of this manual. You then will be ready to try a particular technique and to use data collection procedures (Technique 5) to validate the effectiveness of the technique as a solution to the feeding difficulty. A reasonable goal can then be established and written according to the format you use for writing behavioral objectives. The progress of the child can be documented using data collection procedures. After the child has achieved the objective, a new objective can be established by following the same assessment procedure.

1) IDENTIFY the key problem area(s) in which you wish to focus intervention.
2) LOCATE the step in the training sequence where you subjectively judge that the child is currently functioning.
3) FOLLOW the DIAGRAM for that step until you have identified the key problem, tried solutions (techniques) and determined the technique that will be most effective.
4) ESTABLISH an achievable goal.
5) WRITE the behavioral objective for the desired behavior or MAKE A FLOW-CHART (see Bricker and Campbell, 1982a) for the intervention process.
6) ESTABLISH data collection procedures and use data to determine when to move onto another objective.
7) RECYCLE STEPS #1 - #5 to identify additional learning area needs in eating and drinking.

PROBLEM #1: THE APPROPRIATE ENVIRONMENT

MEALTIME ENVIRONMENTS
can be pleasant, cheerful, fun . . . NOT drudgery. Feed children in a separate dining area or room -- Create a dining area if one isn't physically available. Use cheerful placemats, napkins, trays, dishes. can be instructional, learning environments . . . for skill acquisition, for cognitive learning, for language.



allow the child to do as much as he is able.
feed the child slowly.
spend time with the child . . . Don't always RUSH.
have respect for the child, his feelings, his rights, his individuality.
be pleasant during mealtimes . . . Talk to the children instead of to the other adults . . . BE POSITIVE --- Talk to the children about what they're doing that's right, not what they're doing wrong.
allow the child to make choices about what he wants to eat and when he wants to drink.

CHILDREN FED IN GROUPS, IN SCHOOLS, AND RESIDENTIAL CARE FACILITIES

PROBLEM	POSSIBLE SOLUTION
Too many children to be fed and not enough staff to feed them well.	Try having each staff person select one child with whom to work on feeding. Spend time teaching that one child and, as he improves, select a second child with whom feeding skills will be emphasized. Recruit parents, volunteers, etc. to assist with mealtimes.
Children must be fed one at a time	Children seem to enjoy mealtimes if they are eating with other children. Feed "your" child in an area where other children are fed. Encourage socialization skills.
The child will only eat for one person	Some people feed some children better than other people do. If one person feeds a child better, have that person instruct others in how to best feed the child. Have the "instructor" in close proximity when the child is being fed by another person.
The child has the "wrong kind" of food, eating utensils, dishes	Try working with the dietician or with the parent so that those persons become involved with the child's feeding program. If an individual understands "why" something is important, they are more likely to try to contribute.

CHILDREN FED AT HOME

PROBLEM	POSSIBLE SOLUTION
Too many things going on at breakfast or other meals	Try feeding child as normally as possible, but do therapeutic feeding at a snack time or other time when you can spend time individually with child. Feed other family members first and then feed the child who needs help either earlier or later.
Equipment is different from that used at school	Ask therapist to recommend (and order, if necessary) feeding equipment that is identical to that used in school so that a second set is at home. Work with therapist/teacher to obtain positioning that is as close as possible to that used at school (even if the exact devices are not the same). For instance, if sitting is used at school, use a sitting position at home also.
Child performs better at school than at home or at home better than at school	Don't feel inadequate if the child eats better for the teacher or therapist than for the parent. The therapist or teacher is probably doing something different than is being done at home. Work with the therapist/teacher until you are sure that you are doing the same things. Also, try to make the environments in which the child is fed as similar as possible!! You need to teach the teacher/therapist if the child is able to eat better at home!!
Child can't be taken into restaurant	Work with the therapist/teacher to find portable equipment that will position the child as appropriately at possible when eating away from home. Then work out the types of feeding equipment and foods that are easiest managed away from home and that can be transported with the child.

PROBLEM #2: THE CHILD IS DIFFICULT TO POSITION PROPERLY

PREREQUISITE BEHAVIORS

CHRONOLOGICAL AGE: Most nonhandicapped children are fed in a semi-reclined position until approximately 5-6 months of age. At 6-7 months of age, after the child has developed sitting balance, she/he may be fed in a high chair or a more upright position. By 10-12 months of age, most children are fed sitting in some fashion - usually in a high chair.

GROSS MOTOR MOVEMENT: The following prerequisite skills are necessary for eating in an upright position without adaptive equipment. Adaptive equipment can replace many of these functions in motor handicapped children.

1) Head control in sitting.
2) Good sitting balance with only minimal support.
3) Good trunk control.
4) Ability to coordinate respiration and oral movements.

IDENTIFYING PROPER POSITIONING FOR THE CHILD

#1 Identify possible positions appropriate for the child's chronological age.

#2 Determine the areas of gross motor functioning with which the child needs assistance.

#3 Identify possible positions from #1 which will minimize the child's gross motor limitations.

#4 Choose a position from #3 which will be possible with available adaptive equipment, comfortable for the child, and comfortable for the "feeder".

#5 Introduce the new position gradually so that the child is able to adapt to the change.

PROBLEM #3: THE CHILD REJECTS FOODS AND/OR LIQUIDS

PREREQUISITE BEHAVIORS

CHRONOLOGICAL AGE: The nonhandicapped child accepts foods and liquids at the age when they are offered to the child. At birth, the sucking reflex enables the baby to take liquids using a suck-swallow pattern of oral coordination. At 2-3 months of age, most infants are begun on strained foods dependent on nursing schedule, pediatrician recommendation, and parent preferences. Nonhandicapped infants and young children, as a whole, do not reject foods or liquids other than on the basis of taste preference.

ORAL MOTOR MOVEMENTS: Postural tone in the oral motor musculature and oral motor movement are dependent on normalized movements in response to various types of sensory input. Foods and liquids provide a variety of sensory inputs including temperature, taste, smell, touch (texture) and others. Disturbances in sensory-motor responses may include increases in postural tone in the oral musculature, atypical postural fixations to compensate for low postural tone, and poorly coordinated oral motor movements. Therefore, overall responses to sensory input must be normalized as a basis for refining movement patterns in the oral musculature.

Sucking movements must be present to take liquids from the nipple or a spoon.

Lip movements, including downward movements of the upper lip and lip closure must be present to take foods from a spoon and/or liquids from a cup or glass.

Tongue movements must include forward/backward movements within the oral-motor cavity as well as tongue lateralization (side to side movement) for food or liquids to be held in the oral cavity and moved for swallowing.

Swallowing movements must be disassociated (separated) from sucking to allow for movement of liquids or foods into the throat.

COMPLIANCE

Most children eat what is provided for them. However, some children "express" non-compliance in relation to food or liquid rejection. Where children have atypical tone, tone increases/decreases can occur as a manifestation of non-compliance rather than as a function of neurological involvement. This distinction between neurologically-based and behaviorally-based food/liquid rejection can be difficult to make. A hypothesis (assumption) that the rejection derives from one of these two sources can be made and tested to produce concrete data that allows for the correct assumption.

PROBLEM #3 (CONT.)

OPERATIONALIZING THE PROBLEM
1. Does the child demonstrate oral-motor coordination for some foods (i.e., preferred) but not for others? REFER TO PROBLEM #4 or #5.
2. Does the child reject all foods and/or liquids regardless of preference, texture, taste, temperature? REFER to rule out minimal causes or allergies, etc. OBTAIN assistance of dietician. FOLLOW sequences in PROBELM #4 or #5.

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PROBLEM #4: THE CHILD DOES NOT CHEW

PREREQUISITE BEHAVIORS

CHRONOLOGICAL AGE: Nonhandicapped children are typically 6-8 months of age before they are fed lumpy foods, 8-10 months of age before eating semi-solid chewable foods, and 12-15 months before efficiently chewing most cut-up table foods.

ORAL MOTOR MOVEMENTS: Isolated rotary movements of the jaw constitute the most mature and efficient movements for chewing. However, other patterns of chewing, such as a munching pattern, are also used. In order for rotary movement or munching movements to occur, the up and down movement of the jaw, sometimes referred to as biting, must have been inhibited. In addition, the suck-swallow movements that are used in infancy to obtain liquid from the nipple must have been refined to allow for the tongue, lip, and swallowing movements necessary for effective chewing of most foods. Food must be moved under the teeth and held there as well as moved to the back of the throat for swallowing for chewing to be perfected.

TRAINING SEQUENCE

#1 The child swallows strained foods.

#2 The child munches and swallows mashed/chopped foods.

#3 The child chews semi-solid foods placed between his molars on the side(s) of his mouth.

#4 The child uses rotary jaw movements to chew foods placed between his molars on the side(s) of his mouth.

#5 The child uses tongue movement to move food placed in the front of his mouth to the side (for chewing) and to the back of the tongue for swallowing.

#6 The child is able to bite, chew, and swallow all types of foods.

DOES THE CHILD SWALLOW STRAINED FOODS

ANTECEDENT CONDITIONS

PREPARATION:

1. Position child properly for eating (see Problem #2).
2. Use thickened strained foods that are preferred by the child (obtain information from parent/caregiver).
3. Use a small spoon (or the spoon that is typically used with the child).

ASSESSMENT: Place spoon in child's mouth so that the food is placed in the center of the tongue. Try not to scrape spoon on the teeth, gums, or upper lip.

↓

HOW DOES THE CHILD REACT?

OBSERVE

- Accepts foods but has difficulty with oral movements such as lip, tongue, or swallowing movements
- Pushes food or spoon away; places hands in mouth; holds food in mouth and does not swallow rapidly; or other atypical responses
- Swallows food and does so with coordinated oral movements of lips, tongue, and swallowing

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS	
Difficulty	Possible Solutions
ANTICIPATION	Preparation (Technique #3) Nutrition (Technique #7) Inhibition (Techniques #10, #11, #15, #16) Facilitation (Technique #17)
TAKING FOOD OFF SPOON	Inhibition (Techniques #10, #11, #12) Facilitation (Techniques #18, #20, #22)
TONGUE MOVEMENT	Inhibition (Techniques #10, #11, #12, #15) Facilitation (Technique #21)
SWALLOWING	Inhibition (Techniques #11, #13) Facilitation (Technique #22)
HYPERSENSITIVITY	Inhibition (Technique #13) Facilitation (Technique #24)
PUSHES FOOD AWAY	Reinforcement (Technique #25) Nutrition (Technique #7)
HOLDS FOOD IN MOUTH	Reinforcement (Technique #25) Facilitation (Techniques #22, #24)
PUTS HANDS OR FINGERS IN MOUTH	Reinforcement (Technique #25) Inhibition (Techniques #10, #13, #15)

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

↓

ASSESS RESPONSE TO MASHED/CHOPPED FOODS

DOES THE CHILD MUNCH AND SWALLOW MASHED/CHOPPED FOODS?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for eating (see Problem #2).
2. Use mashed/chopped foods that are preferred by the child. (Obtain information from parent/caregiver.)
3. Use a small spoon (or the spoon that is typically used with the child.

ASSESSMENT: Place the spoon in the child's mouth so that the food is placed in the center of the tongue. Try not to scrape spoon on the teeth, gums, or upper lip.

↓

HOW DOES THE CHILD REACT?

OBSERVE

Accepts food but has difficulty with oral movements such as lip, tongue, or swallowing movements

Pushes food or spoon away; places hands in mouth; or other atypical responses

→ Swallows food and does so with coordinated oral movements of lips; tongue, and swallowing

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS	
Difficulty	**Possible Solutions**
ANTICIPATION	Preparation (Technique #3) Nutrition (Technique #7) Inhibition (Techniques #10, #11, #15, #16) Facilitation (Technique #17)
TAKING FOOD OFF SPOON	Inhibition (Techniques #10, #11, #12) Facilitation (Techniques #18, #20, #22)
PRIMITIVE TONGUE MOVEMENTS	Inhibition (Techniques #13, #15) Facilitation (Techniques #21, #24) Nutrition (Technique # 7)
TONGUE THRUSTING	Inhibition (Techniques #10, #11, #12, #13) Facilitation (Techniques #19, #21)
SWALLOWING	Inhibition (Techniques #11, #13) Facilitation (Technique #22)
HYPERSENSITIVITY	Inhibition (Technique #13) Facilitation (Technique #24)
PUSHES FOOD AWAY	Reinforcement (Technique #25) Nutrition (Technique #7)
HOLDS FOOD IN MOUTH	Reinforcement (Technique #25) Facilitation (Techniques #22, #24)
CHOKES OR GAGS	Inhibition (Techniques #11, #12, #13, #14)

↓

TEST

Test Specific Solutions
1) Identify key difficulty. 2) Select ONE technique to try with the child. 3) Determine data collection mechanisms and obtain baseline data. 4) Collect data using selected ONE intervention technique and evaluate effectiveness. 5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

↓

ASSESS RESPONSE TO SEMI-SOLID FOODS

DOES THE CHILD CHEW SEMI-SOLID FOODS PLACED BETWEEN HIS TEETH?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for eating (see Problem #2).
2. Use semi-solid foods (soft chewable foods) that are preferred by the child. (Obtain information from parent or caregiver.)

ASSESSMENT: Place food with your fingers between the child's teeth on either the right or the left side of the mouth (not in the center of the mouth). If the child has a history of choking or is not known to chew well, use foods that you can continue to hold outside the mouth.

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HOW DOES THE CHILD REACT?

OBSERVE

Accepts food and mashes between teeth but has difficulty with coordinated jaw movement, "chewing" tongue or lip movements, or with swallowing	Pushes food out of the mouth with his tongue; gags; chokes; gets food "stuck" under tongue or at roof of the mouth; or other atypical responses	"Chews" foods and swallows without choking and with good lip and tongue movements

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
ANTICIPATION	Preparation (Technique #3) Nutrition (Technique #7) Inhibition (Techniques #10, #11, #15, #16) Facilitation (Technique #17)
"BITING" MOVEMENTS OF THE JAW	Positioning (Technique #9) Inhibition (Techniques #10, #11) Facilitation (Technique #19)
JAW LOCKS OR CLAMPS SHUT OR OPEN	Preparation (Technique #3) Positioning (Techniques #8, #9) Inhibition (Technique #11) Facilitation (Technique #19)
POOR ALIGNMENT OF THE JAW IN THRUST RETRACTED POSITION	Positioning (Technique #8) Facilitation (Technique #19)
POOR ALIGNMENT OF THE JAW IN THRUST FORWARD POSITION	Positioning (Technique #8) Inhibition (Technique #11) Facilitation (Technique #19)
LIMITED JAW MOVEMENT -- I.E., LIMITED CHEWING	Nutrition (Technique #7) Facilitation (Techniques #17, #18, #23) Reinforcement (Technique #25)
POOR DISASSOCIATION OF LIP MOVEMENTS	Facilitation (Technique #20)
TONGUE MOVEMENT	Inhibition (Techniques #10, #11, #12, #15) Facilitation (Technique #21)
HYPERSENSITIVITY	Inhibition (Technique #13) Facilitation (Technique #24)
GAGS OR CHOKES	Inhibition (Techniques #11, #12, #13, #14) Facilitation (Techniques #23, #24)

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TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

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ASSESS RESPONSE TO SOLID FOODS

DOES THE CHILD USE ROTARY JAW MOVEMENTS TO CHEW?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for eating (see Problem #2).
2. Use solid, chewy foods that are preferred by the child. (Obtain information from parent or caregiver.)

ASSESSMENT: Place stips or small portions of food with your fingers between the child's teeth on either the right or left side of the mouth (not in the center of the mouth). If the child has a history of choking or is not known to manage solid foods well, use foods that you can continue to hold outside the mouth.

↓

HOW DOES THE CHILD REACT?

OBSERVE

Accepts food but does not use a rotary movement of the jaw to chew and/or has difficulty with coordinated lip, tongue, or swallowing movements	Pushes food out of mouth with tongue; gags; chokes; gets food "stuck in various places in the mouth; does not use any chewing motion; or other atypical responses	Uses rotary jaw movements to chew in combination with well coordinated swallowing

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
ANTICIPATION	Preparation (Technique #3) Nutrition (Technique #7) Inhibition (Techniques #10, #11, #15, #16) Facilitation (Technique #17)
"BITING" OR CLAMPING MOVEMENTS OF THE JAW	Positioning (Techniques #8, #9) Inhibition (Techniques #10, #11) Facilitation (Technique #19)
POOR ALIGNMENT OF THE JAW IN RETRACTED POSITION	Positioning (Technique #8) Facilitation (Technique #19)
POOR ALIGNMENT OF THE JAW IN THRUST FORWARD POSITION	Positioning (Technique #8) Inhibition (Technique #11) Facilitation (Technique #19)
MUNCHING (OPEN/CLOSE) MOVEMENTS OF MOUTH WITHOUT JAW MOVEMENT DISASSOCIATION	Nutrition (Technique #7) Inhibition (Technique #11) Facilitation (Techniques #17, #18, #19, #23) Reinforcement (Technique #25)
POOR DISASSOCIATION OF LIP MOVEMENTS	Facilitation (Technique #20)
TONGUE MOVEMENT	Inhibition (Technique #13) Facilitation (Technique #24)
GAGS OR CHOKES	Inhibition (Techniques #11, #12, #13, #14) Facilitation (Technique #23, #24

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TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

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ASSESS RESPONSE TO SOLID FOODS PLACED IN FRONT OF MOUTH

DOES THE CHILD USE TONGUE MOVEMENT TO MOVE FOOD FOR CHEWING?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for eating (see Problem #2).
2. Use solid foods that can be placed on a spoon and that are preferred by the child. (Obtain information from parent or caregiver.)

ASSESSMENT: Place food (small quantity) on a spoon and place the spoon in the front of the child's mouth. If the child is able to self-feed, allow him/her to place food in own mouth. If child is beginning to self-feed, hand-over-hand guidance can be used to deliver spoon and food to mouth.

↓

HOW DOES THE CHILD REACT?

OBSERVE

Accepts food but does not use well coordinated tongue movements to move food in the mouth and/or has difficulty with coordinated lip or swallowing movements	Pushes food out of mouth with the tongue; puts hands in mouth and/or moves food around in mouth with fingers; gags; chokes; or makes other atypical responses	Uses well coordinated tongue movements to get food from spoon, move under teeth, move to back of throat and swallow

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
ANTICIPATION	Preparation (Technique #3) Nutrition (Technique #7) Inhibition (Techniques #10, #11, #15, #16) Facilitation (Technique #17)
"BITING" OR CLAMPING MOVEMENTS OF THE JAW	Positioning (Techniques #8, #9) Inhibition (Techniques #10, #11, #12) Facilitation (Technique #19)
INAPPROPRIATE ALIGNMENT OF THE JAW	Positioning (Technique #8) Inhibition (Technique #11) Facilitation (#19)
MUNCHING (OPEN/CLOSE) MOVEMENTS OF THE MOUTH WITHOUT JAW MOVEMENT DISASSOCIATION	Nutrition (Technique #7) Inhibition (Technique #11) Facilitation (Techniques #17, #18, #19, #23) Reinforcement (Technique #25)
POOR DISASSOCIATION OF LIP MOVEMENTS	Facilitation (Technique #20) Inhibition (Technique #12)
"SUCKLING" MOVEMENTS OF THE TONGUE	Nutrition (Technique #7) Inhibition (Technique #15)
THRUSTING MOVEMENTS OF THE TONGUE	Nutrition (Technique #7) Inhibition (Techniques #11, #12) Facilitation (Technique #21)
LACK OF LATERALIZATION OF TONGUE MOVEMENT	Facilitation (Technique
LACK OF ELEVATION IN TONGUE MOVEMENT	Facilitation (Techniques #18, #21, #24)
GAGS OR CHOKES	Inhibition (Techniques #11, #12, #13, #14) Facilitation (Techniques #23, #24)
DIFFICULTY SWALLOWING WITHOUT GAGGING OR CHOKING	Facilitation (Technique #22)

↓

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

↓

ASSESS RESPONSE TO SOLID, BITABLE FOODS PLACED AT FRONT OF MOUTH

DOES THE CHILD USE COORDINATED JAW MOVEMENT TO BITE FOODS FOR CHEWING?

ANTECEDENT CONDITIONS

PREPARATION: 1. Position the child properly for eating (see Problem #2)
2. Use solid foods that can be finger fed and that are preferred by the child. (Obtain information from parent or caregiver.)

Place small strips (or pieces) of food in the front of the mouth (but outside the mouth). If the child is able to finger feed, allow him/her to bring the food to the mouth independently. If child is beginning to finger feed, use hand-over-hand guidance to help bring food to mouth.

↓

HOW DOES THE CHILD REACT?

OBSERVE

Accepts food but does not bite and/or does not bite using well coordinated lip and jaw movements	Pushes food out of mouth with the tongue; gags; or makes other atypical responses	Uses well coordinated lip and jaw movements to bite foods and uses tongue and jaw movements for chewing and swallowing

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
"BITING" OR CLAMPING MOVEMENTS OF THE JAW	Positioning (Technique #8) Inhibition (Techniques #10, #11, #12) Facilitation (Technique #19)
INAPPROPRIATE ALIGNMENT OF THE JAW	Positioning (Technique #8) Inhibition (Technique #11) Facilitation (Technique #19)
BREAKS FOOD OFF AGAINST TEETH RATHER THAN USING JAW MOVEMENT FOR BITING	Inhibition (Technique #10, #11) Facilitation (Technique #23)
GAGS OR CHOKES	Inhibition (Techniques #11, #12, #13, #14) Facilitation (Techniques #23, #24)
DIFFICULTY SWALLOWING WITHOUT GAGGING OR CHOKING	Facilitation (Technique #22)

↓

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseine data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

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CHILD DEMONSTRATES WELL COORDINATED ORAL MOVEMENTS IN EATING

PROBLEM #5: THE CHILD DOES NOT DRINK PROPERLY FROM A CUP

PREREQUISITE BEHAVIORS

CHRONOLOGICAL AGE: Nonhandicapped children are born with a reflexive behavior of sucking (suckling) that allows them to take liquids from breast or bottle at birth. At 7-8 months of age, most young children begin drinking from a cup although drinking is not well coordinated. The most complicated and well coordinated oral movements are required for taking liquids from a straw and most children are not able to perform this skill well until 3 or 4 years of age.

ORAL MOTOR MOVEMENTS: Well-coordinated lip and tongue movement is required for cup and straw drinking. Therefore, movement patterns suck as suckling and biting must be refined into more complex closure and swallowing patterns. Tongue and swallowing movements are required to properly channel and guide liquid whereas lip movements assure closure necessary to avoid liquid loss.

TRAINING SEQUENCE

#1 The child obtains and swallows liquids from a spoon.

#2 The child obtains and swallows thickened liquids when presented in a small or cut-out cup.

#3 The child drinks thickened liquids from a cup without liquid loss.

#4 The child drinks any type of liquid from a cup without liquid loss.

#5 The child drinks liquids from a straw.

DOES THE CHILD OBTAIN AND SWALLOW LIQUIDS FROM A SPOON?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for drinking (see Problem #2)
2. Use thickened liquids (milkshake consistency) that are preferred by the child. (Obtain information from parent or caregiver.)
3. Use a small spoon (or the spoon that is typically used with the child).

ASSESSMENT: Place spoon in child's mouth so that the liquid is placed in the center of the tongue. Don't scrape the spoon on the teeth, gums, or upper lip.

↓

HOW DOES THE CHILD REACT?

OBSERVE

Accepts liquids but has difficulty with use of the upper lip to obtain liquids and/or with sucking liquids from the spoon	Pushes liquids away; accepts liquids but loses when attempting to drink and/or spits out; or other atypical responses

Swallows liquids with little liquid loss and with good coordination of the lips, tongue, and cheek musculature

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
POORLY COORDINATED SUCKING/SUCKLING RESPONSES	Nutrition (Technique #7) Positioning (Techniques #8, #9) Facilitation (Techniques #19, #20)
LIP RETRACTION OR OTHER PATTERNS THAT PREVENT LIP CLOSURE	Inhibition (Techniques #11, #12) Facilitation (Techniques #20, #22)
TONGUE THRUSTING AND/OR MOVEMENT OF THE TONGUE OUTSIDE THE MOUTH	Inhibition (Techniques #11, #12) Facilitation (Technique #21)
DIFFICULTY SWALLOWING	Facilitation (Technique #22) Positioning (Technique #9)
CHOKING OR GAGGING	Inhibition (Techniques #11, #12, #13, #14) Reinforcement (Technique #25)

↓

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

↓

ASSESS RESPONSE TO THICKENED LIQUIDS

DOES THE CHILD OBTAIN AND SWALLOW LIQUIDS FROM A CUP?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for drinking (see Problem #2).
2. Use thickened liquids (such as milkshakes) that are preferred by the child. (Obtain information from parent or caregiver.)
3. Use a small cup (such as a medicine cup) or, if the child has hypertonus and a tendency to put the head back in extension, use a plastic cup with a cut-out for the nose (see Technique #9).

ASSESSMENT: Place a small amount of liquid in the cup (one or two sips) and place the cup on the child's lower lip (not between the teeth and/or resting on the bottom teeth). Tip the cup slightly to let a small amount of liquid move to the top of the cup.

↓

HOW DOES THE CHILD REACT?

OBSERVE

- Accepts liquid but has difficulty obtaining (sucking) and/or has problems with lip, tongue, or swallowing movements.
- Pushes cup away; spits liquids out; or other atypical responses.
- Swallows liquids with little liquid loss and with good coordination of jaw, lip, tongue, and swallowing movements.

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
POORLY COORDINATED SUCKING TO OBTAIN LIQUID	Nutrition (Technique #7) Positioning (Techniques #8, #9) Facilitation (Techniques #19, #20) Inhibition (Technique #15)
LIP RETRACTION OR OTHER PATTERNS THAT PREVENT LIP CLOSURE	Inhibition (Techniques #11, #12) Facilitation (Techniques #20, #22)
TONGUE THRUSTING AND/OR MOVEMENT OF THE TONGUE OUTSIDE THE MOUTH	Inhibition (Techniques #11, #12) Facilitation (Technique #21)
DIFFICULTY SWALLOWING	Facilitation (Technique #22) Positioning (Technique #9)
CHOKING OR GAGGING	Inhibition (Techniques #11, #12, #13, #14) Reinforcement (Technique #25)

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TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

↓

ASSESS REGULAR CUP DRINKING ← 64

DOES THE CHILD DRINK LIQUIDS FROM A CUP WITHOUT LIQUID LOSS?

ANTECEDENT CONDITIONS

PREPARATION:
1. Position the child properly for drinking (see Problem #2).
2. Use any type of liquid preferred by the child.
3. Use the type of cup that is typically used by the child and/or a child-sized plastic glass (such as those manufactured by Tupperware or other plastics companies).

ASSESSMENT: Place a small amount of liquid in the cup. If the child is able to bring the cup to his mouth independently, allow him/her to do so. If the child is learning how to drink independently, hand-over-hand guidance or other forms of physical guidance can be used to help bring the cup to the mouth. Be sure that the cup ends up between the child's lips (and not between the teeth) and/or resting on the bottom lip. Also watch for tongue placement in that the tongue should not protrude under the cup (and outside the mouth).

↓

HOW DOES THE CHILD REACT?

OBSERVE

Takes the liquids but has difficulty with sucking motions to draw liquid from the cup, or with lip, tongue, or swallowing movements	Pushes cup away; spits liquids out; or other atypical responses	Swallows liquids of any consistency with little liquid loss and with well-coordinated movements of the jaws, lips and tongue and with coordinated swallowing

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
LIP RETRACTION OR OTHER PATTERNS THAT PREVENT LIP CLOSURE	Inhibition (Techniques #11, #12) Facilitation (Techniques #20, #22) Positioning (Technique #9)
TONGUE THRUSTING AND/ OR MOVEMENT OF THE TONGUE OUTSIDE OF THE MOUTH	Inhibition (Techniques #11, #12) Facilitation (Technique #21)
JAW THRUSTING (JAW PROTRUDING FORWARD)	Inhibition (Technique #11) Facilitation (Technique #19)
SUCKLING PATTERN	Inhibition (Technique #15)
DIFFICULTY SWALLOWING	Facilitation (Technique #22) Positioning (Technique #9)
CHOKING OR GAGGING	Inhibition (Techniques #11, #12, #13, #14) Reinforcement (Technique #25)

↓

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty.
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selected ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

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ASSESS STRAW DRINKING

DOES THE CHILD DRINK LIQUIDS FROM A STRAW?

ANTECEDENT CONDITIONS

PREPARATION:

1. Position the child in a sitting position (see Problem #2).
2. Use any type of thin liquid that is preferred by the child. Don't start with thick substances which will be difficult to manage through a straw. (Obtain information on preferences from parent or caregiver.)

ASSESSMENT:

1. Start by holding the cup and straw in front of the child so that the straw reaches the lips easily.
2. If the straw appears to be too long, e.g., the child gets liquid into the straw but does not draw the liquid all the way to the mouth, shorten the straw and hold the cup closer to the child's mouth.
3. If a shorter straw is still too difficult, use a straw without the cup by placing the straw into the liquid, holding your finger over the end of the straw, removing the straw from the liquid and placing the other end in the child's mouth while slowly releasing your finger. This will enable you to control the amount of pressure required to draw the liquid through the straw and will make the task very easy (in terms of oral pressure required).

↓

HOW DOES THE CHILD REACT?

OBSERVE

Does not get the liquids into the straw and/or gets liquids into the straw but does not show sufficient pressure and/or coordination to draw liquids into the mouth	Bites straw; spits liquids out; or other atypical responses	Draws liquids up through a straw easily and with good coordination of lips; cheeks, and swallowing movements

↓

INTERPRET

IDENTIFY THE SPECIFIC PROBLEMS

Difficulty	Possible Solutions
LIP RETRACTION OR OTHER PATTERNS THAT PREVENT LIP CLOSURE	Inhibition (Techniques #11, #12) Facilitation (Techniques #20, #22) Positioning (Technique #9)
BITING AND OTHER JAW CLOSING THAT CLOSES OFF THE STRAW	Inhibition (Techniques #11, #12) Facilitation (Techniques #18, #19, #20)
SUCKLING PATTERNS WHERE THE TONGUE PROTRUDES FROM THE MOUTH AND IS POSITIONED UNDER THE STRAW	Inhibition (Technique #15) Facilitation (Techniques #20, #21, #22)
POORLY COORDINATED JAW AND LIP MOVEMENT	Inhibition (Techniques #11, #12) Facilitation (Techniques #18, #19, #20)
INSUFFICIENT CONTRACTION OF THE LIPS TO FORM SEAL FOR NEGATIVE PRESSURE	Facilitation (Techniques #18, #20)

↓

TEST

TEST SPECIFIC SOLUTIONS

1) Identify key difficulty
2) Select ONE technique to try with the child.
3) Determine data collection mechanisms and obtain baseline data.
4) Collect data using selection ONE intervention technique and evaluate effectiveness.
5) Continue to criterion if treatment is effective. Select second technique and evaluate if technique first tried is not effective. Recycle.

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THE CHILD DEMONSTRATES WELL COORDINATED ORAL MOVEMENTS IN DRINKING

SOLUTIONS TO EATING PROBLEMS

TECHNIQUES --- POSSIBLE SOLUTIONS!!

The techniques that are described in the following section have been suggested as possible solutions to specific problems which individual children may demonstrate with the complicated processes of eating and drinking. These techniques have largely been developed by "hands-on" people who have worked with children with feeding problems in clinical and educational settings. The effectiveness of individual techniques has generally not been determined through research testing but rather through individual evaluation in conjunction with individualized programs developed for handicapped infants and children with a wide variety of problems with eating and drinking.

Many of the suggested techniques were originated by Helen Mueller (1972; 1975) who is a Swiss speech pathologist who has trained many therapists in the United States to evaluate and program for children with pre-speech and language problems. Others have been developed by Suzanne Morris, Ph.D. (1977; 1981) who has studied feeding problems in children with cerebral palsy and other forms of developmentally disabling conditions. The philosophical structure for evaluating and programming for handicapped children in the area of pre-speech and feeding skills has been provided through the theoretical rationale behind programming for children with central nervous system disturbances which was pioneered by Dr. and Mrs. Karel Bobath (1972; 1975) and which includes a neurodevelopmental basis for intervention with handicapped children. Many of the techniques specific to improving eating and drinking skills have not been described in the literature but have been transmitted in workshop and inservice sessions presented by numerous people throughout the United States. This "word of mouth" transmission of evaluation and programming skills for children with feeding problems has made it difficult to attribute the development of specific techniques to any one individual.

The techniques included in this book do not represent all of the techniques which may be effective in remediating specific feeding difficulties with individual children. Those that are included are the kinds of techniques that can be described adequately through written language. They are suggested as guidelines for the types of approaches which have been clinically effective in improving eating and drinking abilities with handicapped children.

There may be instances of situations where children with problems in feeding do not improve using any of the techniques suggested in this manual. Consultation with specialists associated with the child's educational or therapy program may be of assistance to generate other approaches (and techniques) which may be effective or to apply some of the more neurophysiological approaches which generally require monitoring by a therapist or person trained in use of those techniques (which are not included in this manual). Referring to the original sources by reading some of the articles suggested in the bibliography may also be helpful to identify other techniques that may be of assistance with a given child's problem.

Techniques by themselves are not answers to remediating difficulties with feeding nor to teaching new eating and drinking skills. Any technique designed to conform to the theoretical structure behind the problem and that proves effective when tested with an individual child can be useful not only with that child but with other children with similar problems. The techniques presented in this section are a starting point for programming in the areas of eating and drinking and should be used as a basis for initiating programming in the identified area of difficulty that an individual child demonstrates with the feeding process. Hopefully, those of you using this manual will "invent" and test new techniques to modify those that are presented here in such a way that new knowledge of effective approaches to remediating feeding difficulties will be generalized.

The techniques have been grouped according to the following categories:

PREPARATION

DIRECTION

RESOURCES

NUTRITION

ADAPTIVE EQUIPMENT

INHIBITION

FACILITATION

REINFORCEMENT

Each of the techniques is numbered and referenced to the PROBLEM IDENTIFICATION section of this manual. The techniques will only be helpful if you have first conducted the necessary assessment to determine the specific problem demonstrated by the child.

PREPARATION

TECHNIQUE 1: PREPARE THE "FEEDING ENVIRONMENT"

HOW?

Make the place where the child will be fed as natural an eating situation as possible. At BEST, the child should be fed ---

IN a "dining area" that is quiet, relaxing, enjoyable
WITH other children
BY the same persons every day
WITH appropriate utensils.
WITH tasteful, colorful, nutritional foods

BEST may be something to work towards in some settings. Think of your own compromises, specific to your setting, so that the

GOAL: APPROPRIATE ENVIRONMENT

can be established at your facility or in your home. There are GIVEN LIMITATIONS to every situation, BUT there are also individuals who can turn those limitations into STRENGTHS!!! Become an individual capable of creating change . . . BUT

WHEN MAKING CHANGES in the "feeding environment", make those changes gradually.
CHANGE one thing at a time so that children will be able to adapt appropriately to those changes.
TACKLE one thing at a time -- DON'T become OVERWHELMED by all the changes that might be necessary to create a pleasant situation.

WHY?

CHILD: The child will be better able to relax, to concentrate on eating, and to learn to associate eating with pleasure or "good feelings". He will better learn that eating is expected at certain times. A pleasant environment can contribute to better digestion, less vomiting/gagging, and an overall improvement in health and nutrition.

YOU: Will enjoy feeding and be able to spend more of your time in activities other than feeding the children.

WHAT CAN HAPPEN? The child may learn an association of eating with inappropriate behavior that she/he may retain for a lifetime if feeding becomes a "fight" in infancy or early childhood. Unadaptable behavior of eating only in certain situations, at certain times, eating only specific foods, or accepting certain liquids may be learned. The child may learn to eat only when fed by specific individuals. These types of behavior can be more difficult to modify at a later age than they are to prevent in early infancy/childhood.

TECHNIQUE 2: PREPARE YOURSELF

HOW?

Have necessary equipment ready and at hand.
Be sure that you have allotted enough time to feed the child without rushing.
TRY to have a pleasant attitude --- a good "MENTAL STATE" about feeding the child.
BE PATIENT!!!
BE POSITIVE AND REINFORCING!!!

WHY?

We all have good and bad days. Some of us are more patient than others. If you are naturally impatient, quick-moving, or dislike feeding or dislike feeding a particular child, it will be necessary to recognize and acknowledge your limitations ... AND to work out ways around those limitations. Switching with another staff person can insure "patient feeding" of a child on a day that you might be "bugged" by that child ... OR that he might be "bugged" by you. CONSCIOUS CONTROL can help you to move more slowly or to develop more patience -- even if you aren't feeling slow or patient that day. Many people dislike feeding in general. Try to provide incentives for yourself so that feeding might become challenging or interesting if you are one of these people. Decide to feed the most difficult child to see if you can help him improve. Decide to work with a child that other staff members are having difficulty with feeding. OR figure out ways to reward yourself for doing something that you dislike. You may have to feed if it is one of your responsibilities BUT you can feed in a more interesting or challenging way OR you can treat it as drudgery and try to get it over as fast as possible.
YOUR ATTITUDE --- YOUR BEHAVIOR --- DIRECTLY affects the child's behavior.

WHAT CAN HAPPEN? YOU can control the feeding situation. YOU are a SIGNIFICANT part of the child's environment. The OUTCOME can be POSITIVE or NEGATIVE. It depends on YOU.

TECHNIQUE 3: PREPARE THE CHILD

HOW?

FOODS: Try to determine some foods that the child enjoys and, if possible, have these available for the child as a "treat", at "snacktimes", and at regular mealtimes. Foods can be used as a reward for good performance.

FOOD PRESENTATION: Foods should be presented to the child separately -- not all piled into one dish. Trays with separate dividers are available in most school cafeterias and in most institutional settings. Placing foods on a plate or in a large bowl (separately) may be necessary to allow the child to assist in feeding himself. Baby dishes which heat will help to maintain the temperature and taste of foods for younger children.

EQUIPMENT: Proper eating utensils should be available for each child. A knife should be available for the child to use if he is able to manage this utensil. A proper spoon will help the child who is being fed to eat better. Eating dishes also should be appropriate for the age of the child and for the skills which he is learning to master. Attractiveness of the dishes helps to make mealtimes more enjoyable. Other "embellishments" such as placemats or tablecloths, napkins, and dining room decorations, etc. can be used to make the environment more pleasant or as a special treat -- such as for holidays.

BIBS: Bibs, however necessary, are demeaning for older children -- regardless of the child's mental age. Smocks or terrycloth aprons are easy to have made and are more appropriate for older children.

WHY?

It is important for individuals to develop self-awareness, self-image, responsiveness to the environment and to the individuals in the environment, and appropriate social skills if growth and learning are to occur. Mealtimes can become one mechanism through which the child can develop these affective skills --- OR mealtimes can be sterile, unattractive, demeaning, degrading environments. Many things that are detrimental to the development of SELF RESPECT are done unintentionally.

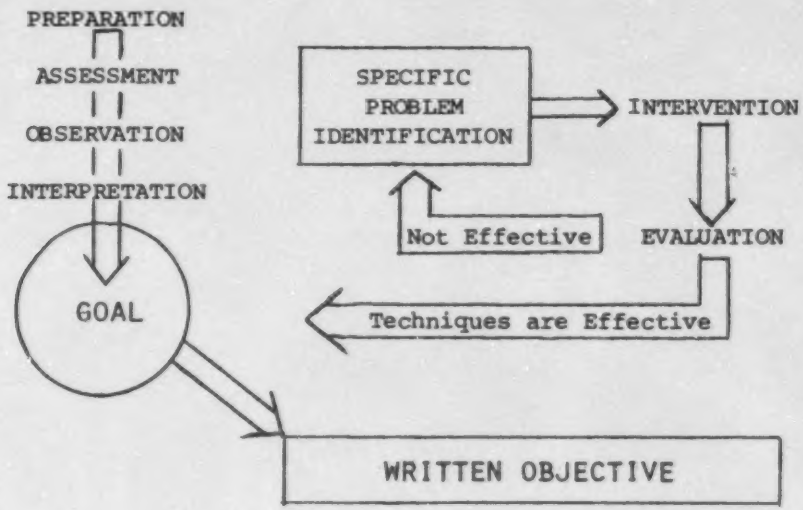
DIRECTION

TECHNIQUE 4: ESTABLISH REASONABLY ACHIEVABLE GOALS

HOW?

Persons working with children with feeding difficulties have developed several different methods to establish appropriate goals. Speech therapists, working in the area of feeding, frequently use a pre-speech and language assessment (e.g. Morris, in press). Educators and psychologists use some form of developmental assessment. Persons with strong commitment to behavioristic approaches use an assessment based on detailed measuring of the expected response in combination with task analysis.

In a PROBLEM-ORIENTED APPROACH, goals are established as a result of a process that emphasizes not only SPECIFIC PROBLEM IDENTIFICATION but also MEASUREMENT OF TECHNIQUE EFFECTIVENESS.



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In a PROBLEM-ORIENTED APPROACH, PREPARATION, ASSESSMENT, OBSERVATION, and INTERPRETATION each contribute to SPECIFIC PROBLEM IDENTIFICATION.

PREPARATION: This step is designed to control variables that are extraneous to the oral-motor coordination difficulties a child might be demonstrating in eating and drinking. Environmental factors are "maximized" to reduce the probability of these factors confounding the actual feeding process.

ASSESSMENT: Controlled input occurs in this step in order to achieve as objective an idea as possible of the child's eating or drinking.

OBSERVATION: The child's response to the controlled input of the assessment step is carefully observed in order to gain as much objective information as possible about the QUALITY and QUANTITY of the child's response.

INTERPRETATION: It may be impossible to know "WHY" a child is responding to input in a specific manner or information about "WHY" may be irrelevant to the intervention that will help the child develop specific skills. Knowledge of "WHY" is CRUCIAL to the intervention that will later occur when working with children with feeding problems. TENATIVE-WORKING DECISIONS (hypotheses) about "WHY" are made as a basis for SELECTION of REMEDIAL TECHNIQUES in the interpretation step.

SPECIFIC PROBLEM IDENTIFICATION and THE TECHNIQUE-PROBLEM MATCH:

The TENTATIVE-WORKING DECISION is SPECIFIC PROBLEM IDENTIFICATION. TECHNIQUES to remediate that problem will be selected based on the problem identification. These TECHNIQUES, as part of the total PROBLEM-ORIENTED PROCESS, must then be evaluated in order to determine their effectiveness given the particular child and the feeding situation. Evaluation of the effectiveness of techniques also provides FEEDBACK on to what extent the original WORKING DECISION, the SPECIFIC PROBLEM IDENTIFICATION, was accurate. The GOAL can be established and WRITTEN OBJECTIVES stated after techniques which are effective in remediating a specific problem have been identified. Re-assessment of the TENTATIVE WORKING DECISION must occur when techniques are not effective. The effectiveness of the PROBLEM-ORIENTED APPROACH is DIRECTLY RELATED to the degree of accuracy in identification of the child's problem.

ESTABLISHING GOALS AND WRITTEN OBJECTIVES:

Let's assume that you are working with a child who only accepts strained foods. You prepare him, yourself, and the environment in which he will be fed. You then feed him thickened strained foods, and he reacts by opening his mouth and pushing his tongue out of his mouth. You interpret his behavior as that of poor tongue control with tongue thrusting as part of a total extensor pattern of open mouth/tongue thrust. You then try a technique of providing tactile/kinesthetic cues and verbal reinforcement in order to help him open his mouth a small amount and keep his tongue in his mouth. This technique is effective -- and he is able to eat thickened foods in a "normal manner" with your help. You are now ready to establish the GOAL and from there to state the WRITTEN OBJECTIVE. You know that it is a reasonably achievable goal for the child to acquire the skill of eating thickened foods independently.

GOAL: The goal should state REASONABLY ACHIEVABLE skills. It provides a general direction from which the OBJECTIVE will be written. (The GOAL in this hypothetical situation would be for the child to eat thickened foods independently . . . without cues or verbal reinforcement.)

WRITTEN OBJECTIVE: The written objective states the behavior expected by the child within the conditions of -- Who? What? When? Where? The written objective states the goal in MEASURABLE TERMS. (The WRITTEN OBJECTIVE in this hypothetical situation might be written as: (Child's name) will eat ten (or whatever) spoonsful of thickened food using a pattern of normal lip and tongue movement without tactile/kinesthetic and verbal cues. In this instance, the WRITTEN OBJECTIVE is for TERMINAL (or End) BEHAVIOR. Sub-objectives, which would outline the steps of achievement that the child will demonstrate "on the way" to demonstrating the terminal behavior, might also be stated.

Writing objectives can be an "art" in itself. There are many resources which can assist you in learning to write appropriate objectives if you have difficulty with this step.

WHY?

WHY? ---Establish Reasonably Achievable Goals?

WHY? ---Evaluate and Measure the Child's Achievement?

WHY? ---Direction???

BECAUSE, without DIRECTION, reasonably achievable goals, and evaluation/measurement, who will know what has happened - to you, to the child, to his environment? It is just as essential to know "where you have been" as it is crucial to know "where are you going". Most individuals working with handicapped persons are well aware of the need to properly program for children. Most people would agree with the needs of evaluation, goal-setting, measurement of progress -- However, many of these same persons never "get around to" or "don't have time to" or "don't know how to", implement the principles in which they believe. ACCOUNTABILITY, long philosophically accepted, is now legally mandated. If you want to BE an EFFECTIVE IMPLEMENTER of a PROBLEM-ORIENTED APPROACH, DIRECTION must be included as one of the most important techniques.

TECHNIQUE 5: MEASURING PROGRESS -- OR LACK OF PROGRESS

HOW?

WELL-WRITTEN objectives provide the basis against which change in behavior can be quantitatively measured. In fact, the objective itself and how behavior is described in that objective can determine the way in which behavior will be measured.

Measuring behavior ACCURATELY and RELIABLY can be both an art and a science if measurement is to provide critical information about child progress. There are many ways to collect data, to represent that data, to interpret the results of data collection, and to use that interpretation effectively in programming for children. Individualized Educational Programming (Bricker & Campbell, 1982a) describes data collection systems in relation to a problem-oriented approach to education. However, there are many other written resources that can be used to help you set up data collection systems for eating and drinking programming. Some of these references are included in the resource section at the end of this manual.

There are two basic ways in which behavior can be quantified:

FREQUENCY

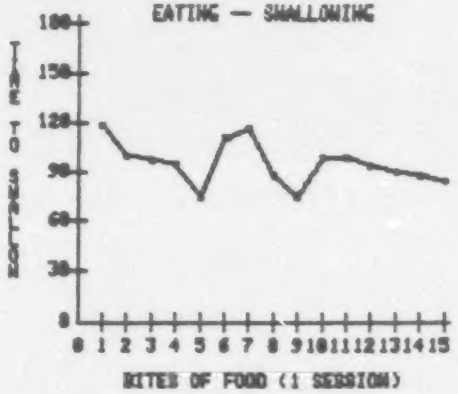
DURATION

FREQUENCY is a measurement of the NUMBER OF TIMES a behavior occurs. DURATION is the AMOUNT OF TIME the behavior occurs. A ratio between these two measures FREQUENCY DIVIDED BY DURATION yields another measurement, a measure of RATE of behavior, or the NUMBER OF TIMES the behavior occurs within a FIXED PERIOD OF TIME.

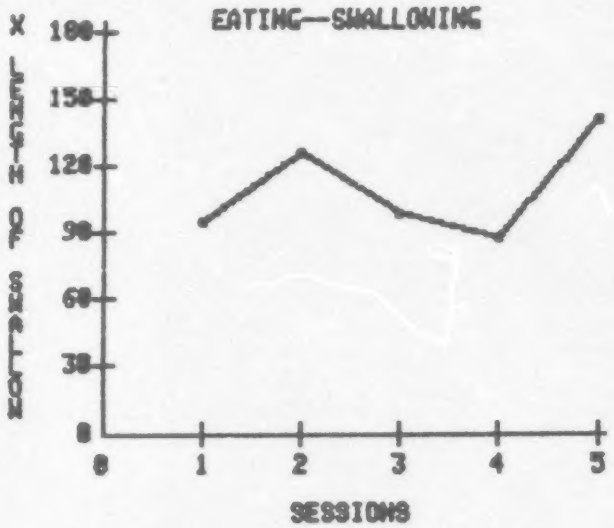
In the previous example (child's name) will eat ten (or whatever) spoonsful of thickened food using a pattern of normal lip and tongue movement without tactile/ kinesthetic and verbal cues) an individual working with the child would simply count the number of spoonsful of food that were eaten as described. FREQUENCY would be the form of data being collected.

Measuring Behavior in Eating and Drinking:

Data can be collected for ASSESSMENT, for EVALUATION OF PROGRESS, and as the basis of DECISION-MAKING about programming. ASSESSMENT measurements are taken on the FREQUENCY, DURATION, or RATE of behavior WITHOUT ANY INTERVENTION. These measurements are referred to as BASELINE. Your BASELINE measurement tells you quantifiably how well the child can do on his own, without your or anyone else's help. BASELINE measures also help you decide whether the behavior you have selected is one that the child is unable to perform. For instance, you have been asked to evaluate a child for problems with pre-speech and feeding. The teacher or parent may report to you that the child has difficulty swallowing. Your clinical observations verify that swallowing is, indeed, a problem. You then might want to TAKE A BASELINE to QUANTIFY the extent of the swallowing problem. You decide to give the child 15 spoonsful of food and to time the length of time it takes for the child to swallow the food after the food has been placed in the mouth. Your results might look like this:



You know how long it took the food to be swallowed on a particular day at a particular time. You don't know, however, whether or not this measurement is reflective of the child's performance on any given day or at any particular time of the day. Therefore, you now must conduct this simple assessment on several more days, a minimum of 3, in order to determine the STABILITY of the performance. Your results may look like this:

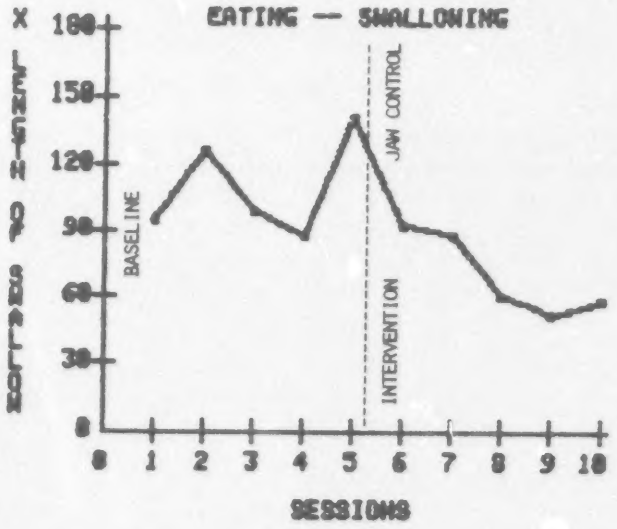


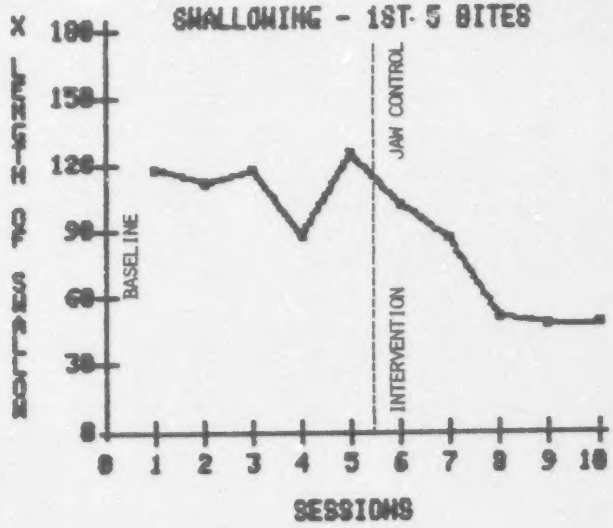
Now you know for sure that the child has a problem with swallowing AND you also know the EXTENT OF THE PROBLEM with swallowing. Knowing the extent of the problem is important since the EFFECTIVENESS OF SELECTED TECHNIQUES will be measured against the BASELINE.

Your BASELINE measures define how well the student is able to perform WITHOUT ANY INTERVENTION. The next step is to determine the intervention that will be given for the problem and how to record the effects of that intervention on the behavior. In the instance of swallowing, you would select an intervention (perhaps use of jaw control) and decide how frequently you are going to measure the effectiveness of jaw control on swallowing time. You might elect to measure every time the program (use

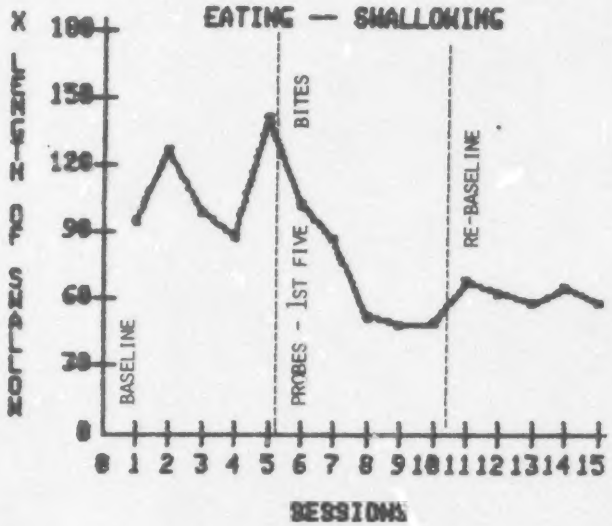
of jaw control) is implemented with the child or to PROBE the behavior once per week or at the beginning or end (or both) of the feeding session. The important point is to BE CONSISTENT!!!

Feeding programs are frequently very time consuming since a child with difficulties may take considerably longer to feed than a child without substantial problems. Therefore, measuring every single bite of food or every single sip of liquid may be extremely difficult. You might elect to measure the FIRST and LAST five or ten mouthsful of food in each meal to obtain a representative SAMPLE of the child's behavior across the whole meal. Or you might want to collect data on the FIRST, MIDDLE, and LAST five mouthsful of food if that provides a more representative SAMPLE of the child's performance. Such a strategy allows you to determine how well the child performed in a given meal without having to record performance for the entire meal. Your data may then look like this:





PROBES typically are measures of performance without intervention that record change in behavior (improvement in swallowing, in this instance) over time. In essence, PROBES are similar to post-test measurements where you are attempting to see how well the child does after the intervention has been implemented. PROBES can be difficult to interpret when used as the ONLY measure of progress or lack of progress in feeding programs. RE-BASELINES of behavior can be more effective since samples of performance are likely to be more stable. However, PROBES do offer a simple mechanism for collecting data where time is an important consideration. The effectiveness of jaw control as a method of decreasing length of time to swallow might be represented as below:

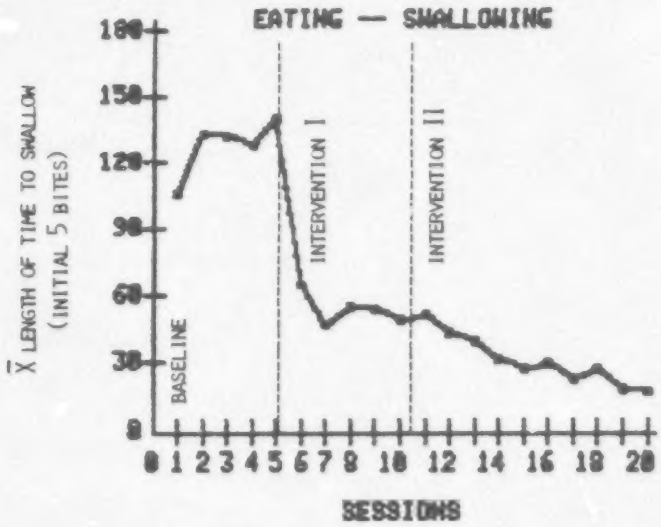


Making Programming Decisions on the Basis of Data:

The most important reason to collect data on eating and drinking performance is to determine the EFFECTIVENESS OF SELECTED TECHNIQUES. A technique that is "supposed to" change a particular aspect of the way in which a child manages an eating or drinking activity and DOES NOT change that behavior should be discontinued and

replaced with another technique. The important point is that the child should increase competence in managing the food or liquid --- not that a particular technique(s) is or is not being used. Data can help determine OBJECTIVELY whether or not a particular technique is effective.

Knowing that a particular technique is not working (regardless of the reason) can prevent wasting time and continuing to precisely program using an ineffective technique. The programmer can then try something else or TRY ANOTHER WAY!! (Gold, 1980). Data from the example we have been using in this section, an objective of decreasing length of time to swallow, indicates that the selected technique, jaw control, is not working because the length of time to swallow is not changing. The creative programmer knows how to change to another technique if the desired outcome is that the child will swallow more rapidly. In this situation, perhaps you would try controlled pressure to the swallowing mechanism (Technique 22). Subsequent data might look like this:



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WHY?

Data collection and the quantification of behavior provides information on ASSESSMENT, EVALUATION OF PROGRESS, and DECISION-MAKING about programming. The problem-oriented model depends on accurate decisions about "problems" in behavior FOR THE PURPOSE OF identifying and implementing EFFECTIVE SOLUTIONS. Quantifying eating and drinking problems helps each of us define the extent to which a particular problem is, in fact, present AND determine the EFFECTIVENESS OF SELECTED TECHNIQUES as in "solutions". There are many solutions to the same problems and many paths to the same end!!!. Our challenge is to find the best solution for the problems demonstrated by a particular child.

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RESOURCES

TECHNIQUE 6: SEEK ASSISTANCE THROUGH EFFECTIVE USE OF AVAILABLE RESOURCES

HOW?

RESOURCE #1: OTHER PEOPLE

Everyone works with other persons. Most programs for handicapped people have at least aides, teachers, a supervising teacher, therapists, and parents. These persons are resources and can provide a "fresh point of view" when you are stuck.

Parents or caretakers are excellent resources. They may have a different approach to the child because of caring for him at home or in a ward environment. Often, they have developed specialized ways of recognizing the child's needs, managing his behavior, or caring for him. They may not have lots of "professional expertise" or use "professional jargon", but they do have information about the child and "possible solutions" to his/her problems.

Some programs have ongoing or consultancy services from physical, occupational, or speech therapists and/or from specialty physicians, dieticians, nurses, psychologists, and other professional specialties. Some programs can't afford or can't locate specialty persons. Specialty persons are a resource -- even if they aren't directly involved with a particular program. To use specialty people effectively:

1) Identify specialty people who are located in your geographical area or who have background in the type of child with whom you are working.

2) Specifically, and as objectively as possible, identify the problem with which you need assistance.

3) Call those persons who can help you on the phone. Explain your problem. Ask for particular help. The child's physician, or specialty physician, his therapist, a psychologist who has worked with the child, generally are willing to help you by phone -- as long as you can state the problem and what type of help is necessary.

Another approach is to utilize local resource people who may not have had direct involvement with a particular child.

1) Therapists or other professional specialists in your geographical area CAN be excellent resources -- even if they have never seen the child or the situation in which he is receiving programming. These people can often "steer" you to written sources, other people, etc. or can provide guidelines for "solving your problem" if you can state your problem and the type of assistance you need.

2) Often many handicapped children who reside in rural or urban areas receive medical care through a regional medical facility. Find out from parents when children have appointments at these facilities and call the child's physician with your questions or problems regarding the child. Many regional medical centers review children's progress through having the child and his family attend a clinic. Clinic sessions generally include review of the child's current status and programming with recommendations made for changes which will assist the child to acquire new skills. Most clinics are multidisciplinary and utilize "evaluations" from physicians, psychology, social service, audiology, and physical, occupational, and speech therapy. The specialists who are involved in "evaluating" a particular child for clinic vists are generally more than willing to assist you by considering your problem or question when reviewing the child's case.

3) Some professional people are available to facilities on limited consultancy. Hiring "an expert" to come to your facility for one or two days may be helpful if you need an "expert" opinion on more than one child, on particular program direction/evaluation/modification, or on specific skill upgrading. Hiring a consultant can be expensive, so insure that you have specifically identified what you want done, that the consultant has the "right expertise" to help your program so that time with you will be spent most efficiently, and that a person has been designated who will follow through on consultant recommendations.

RESOURCE #2: WRITTEN MATERIALS

Written materials often are the least effective and least helpful resource, however, everyone has access to written information. Learn to use your library

services (such as interlibrary loan) and people resources in order to locate written materials. Often, materials may not deal specifically with "your problem", but they can provide "insight" that will assist you in generating solutions --- AND, they are better than nothing!! A reference list is included at the end of this manual to get you started.

RESOURCE #3: MEDIA MATERIALS

Films, videotapes, and slides or slide-tapes often are more helpful than written materials. Information presented visually is usually easier to grasp and to apply in any given situation. Many colleges or universities have film libraries which lend materials at a nominal cost. Many state Departments of Mental Health and Retardation also have film libraries. Locate sources near you and investigate resources that might be available in your area.

RESOURCE #4: ORGANIZATIONS

There are numerous organizations which provide direct and indirect services to handicapped persons. National organizations such as United Cerebral Palsy, Inc., National Society for Crippled Children and Adults, the American Association for Mental Deficiency, the Association for the Severely Handicapped, and the Council for Exceptional Children have written materials and/or films which can be purchased or rented at minimal cost. Some of these agencies can also provide assistance in locating resource persons in your geographical area. A list of organization names and addresses is included at the back of this manual.

Written materials also can be purchased from the U.S. Government Printing Office and/or through U.S. Government agencies responsible for particular types of programming for handicapped children. Contacting your state level branch of government agencies can also help you obtain and/or locate resources which might be helpful.

WHY?

All of us, at some time feel frustrated, discouraged, and less than competent regardless of level of expertise, amount of experience or educational and professional background. All of us, at some time, NEED HELP! Many people are unwilling to ask others for assistance with problems or with a particular problem even though a team approach is founded on "people helping people". Often, professionals and parents fear looking "dumb" or have difficulty "admitting failure" or think they have "no resources". USE WHAT YOU HAVE TO GET HELP WHEN YOU NEED IT -- Resources can increase effectiveness!

NUTRITION

TECHNIQUE 7: INSURE THAT THE CHILD RECEIVES NUTRITIOUS AND TASTEFUL FOODS

HOW?

Often, when a child has feeding difficulties, well-balanced meals are lost in the process of getting a child to "eat something". There are a variety of foods at each level of difficulty which should be introduced into a child's diet despite difficulties with eating and drinking that the child might have. The following chart presents a listing of SUGGESTIONS for foods which might be appropriate for a child to eat given his ability to manage food and liquid substances.

Easiest

↓

Most Difficult

LIQUIDS:

Heavy, milky liquids:

ice cream
milkshakes
yogurt
pudding
custard

Heavy, clear liquids:

fruit juices (apricot, tomato, pineapple)
blended fruit drinks

Thin, milky liquids:

milk
cream soups

Thin, clear liquids:

water
buillon/broth
fruit juices (orange, grape, grapefruit)
soft drinks

FOODS:

Strained foods

commercial baby foods
home-made baby foods
very blended table foods

Thickened foods:

baby cereals
strained foods thickened with wheat germ, baby cereals, etc.
table foods blended to puree

Mashed/chopped semi-solids:

oatmeal
finely mashed bananas or similar fruits
mashed potatoes
mashed squash or similar vegetables
soft, scrambled eggs
mashed soft boiled eggs

Textured semi-solids:

tapioca pudding
applesauce
cookies dipped in milk
some junior meats

Lumpy foods:

fried eggs
cottage cheese
hamburger meat
spaghetti

Firm/chewy foods:

raisins
cheddar cheese
luncheon meat
chicken
some caramel candy

Easiest

↓

Most Difficult

Crisp foods:

peanuts
popcorn
pretzels
potato chips
bacon
raw vegetables

Very chewy foods:

roast beef, steak
ham, pork chops
lamb chops
raw celery

Sticky foods:

peanut butter
fresh bread
marshmallow

Combination foods:

vegetable or noodle soup
jello with fruit chunks
dry cereal with milk
some sandwiches
many junior baby foods

GENERALIZATIONS CON ERNING NUTRITION:

1) A child should eat three meals per day -- In some instances, severely handicapped children have been fed two CAREFULLY PLANNED meals per day. This "plan" has been successful in reducing vomiting following eating, in allowing more time for the digestive process, in maintaining health, and in reducing the amoutn of time spent feeding a child per day. Seek assistance of a dietician before adopting a two meal per day schedule.

2) All children need mild -- In instances where children have severe congestion problems, milk and milk products appear to act to increase that congestion. Milk should be eliminated from the diet with some children, however, the nutrients which milk provides should be incorporated into other foods.

3) A child will get all the vitamins and minerals he needs if he eats three well-balanced meals per day -- providing an adequate supply of vitamins and minerals through food alone may be an impossibility. Some children may need vitamin supplements. Others may also need dietary supplements such as POLYCOSE. A physician or nutritionist can help determine dietary supplements.

4) Few children ahve food allergies -- Food allergies have only recently been recognized and treated in severely handicapped people. A great deal of controversy among professionals regarding food allergies continues ot exist. Consult an allergist to determine possible food allergies and to specify treatment approaches. Many children have food allergies -- the presence of which can significantly influence abilities to eat and drink.

WHY?

The best-planned feeding program includes nutritional balance, adequate calorie intake, adequate liquid intake, and tasteful, colorful foods. With some children, particularly infants and children with medical problems, food intake is critical for life survival. With other children, where certain foods can aggravate a medical condition (as with congestion or food allergies), nutritional concerns may assume a greater importance than the manner in which the child takes in foods or liquids. Knowledge of basic nutrition and/or consultation with a nutritionist or dietician can make the feeding program more successful. There are, of course, lots of other reasons for having knowledge of nutrition . . . some children need to gain or to lose weight as badly as they need to acquire skills of eating and drinking. A child who is fed appetizing, colorful foods may want to eat more than the child who "faces" the same bland, tasteless foods day after day.

ADAPTIVE EQUIPMENT

TECHNIQUE 8: USE EQUIPMENT TO BEST POSITION THE CHILD FOR EATING

HOW?

Children and adults with severe handicap will be better able to eat if they are positioned in as upright a position as possible. Upright positioning places the anatomical structures of the head, neck, and trunk in good alignment and, in some individuals, can "enhance" muscle coordination for proper eating and drinking. Proper positioning provides maximal physical readiness for eating.

Numerous companies manufacture adaptive equipment for proper positioning of handicapped persons and many "eager salesmen" are anxious to sell their products, however, there is no ONE piece of adaptive equipment which will be appropriate for and/or best meet the needs of every handicapped individual. PROPER POSITIONING is not synonomous with ADAPTIVE EQUIPMENT -- many individuals can be well-positioned <u>without</u> use of elaborate equipment or specialized chairs.

<u>CHOOSING POSITIONING FOR A PARTICULAR CHILD</u>:

1) Know what type of position is POSSIBLE. A seated position is "best" for eating with most children but is not always possible.

2) Be familiar with types of equipment that are available commercially as well as kinds of equipment that can be built-to-specification. Use your knowledge of what is available and can be made as "possibilities" for what might benefit a particular individual.

3) Use occupational or physical therapists as resources for further information and/or specific help with a particular individual.

4) Senior citizens, sheltered workshops, high school vocational classes, parents, etc. are often good resources for getting specially-designed equipment built inexpensively.

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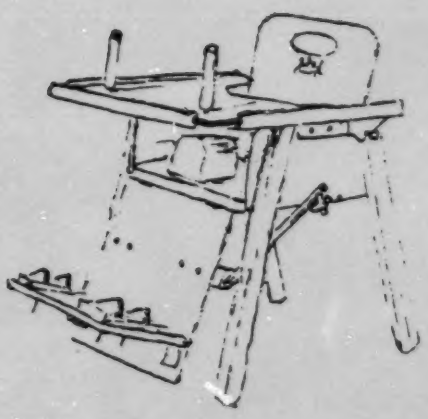
Bolster (Roll Seat) Chair

Adapted Car Seat

Tumbleforms Feeder Seat

Prone Board

Corner Floor Sitter



Example of Adaptive Chair

Examples of Equipment Appropriate for Positioning for Eating and Drinking

5) Have good knowledge of financial resources. Much adaptive equipment is covered under major medical insurance or can be financed through federal or state programs such as Crippled Children's Services, Medicaid, or SSI. Often, local service groups such as Easter Seals (National Society for Crippled Children and Adults), Rotary, Kiwannis, Junior League, and others are willing to purchase adaptive equipment for a particular child or may grant no-interest loans to families of handicapped persons.

6) A resource list of adaptive equipment designs and manfacturers is included at the back of this manual.

WHY?

Proper positioning is essential to a good feeding program -- particularly with children with neurological involvement. What "happens" in the mouth is directly related to what is happening in the rest of the child's body. Many a tongue thrust has been eliminated through positioning ALONE simply because, without positioning, what was happening in the rest of the body was "wrong" enough to make the "mouth go wrong" also. Children with feeding difficulties have enough problems without being asked to do something that, physically, they are not able to best perform. You are asking a handicapped child to demonstrate more normal patterns of eating without first positioning him properly when you require him to perform a skill without the "best equipment" possible. This severely decreases the child's chances of success.

TECHNIQUE 9: USE EQUIPMENT TO FEED THE CHILD

HOW?

Some children are more able to take food and liquids if they are fed using a particular type of spoon or cup . . . or some infants are better able to suck using certain types of nipples. A wide variety of spoons, cups, dishes, and nipples are available commercially.

Basic factors such as the size of the child's mouth, his feeding abilities, and the facilitation or inhibition techniques which will be used with the child must be considered when selecting equipment to be used in feeding. The "coordination" and the preferences of the individual(s) who will feed the child are also important factors. It may be easier for one individual to use a certain spoon, cup, or dish.

Lamb Nipple

Nuk Nipple

Playtex Nurser

Rib Nipple

Nipples are available from drug and infant supply stores in a variety of sizes and shapes.

Infant Feeder: This should be used only with children with considerable feeding difficulties. Use of the syringe action of the feeder inhibits development of oral skills and makes eating extremely passive.

Bottle Straw: This device can be inserted inside a bottle to encourage sucking and to allow for sucking in an upright position.

Examples of Some Types of Feeding Equipment

Metal Feeding Spoon

Cut-Out Cup

Medicine Cup

Long Handled Infant Spoon

Tupperware Cup

Tommy Tippee Cup

Latex Covered Spoon

Mothercare Spoon

Baby Food Grinder is helpful to grind foods (rather than blending) to control textures.

Examples of Feeding Equipment
Cups and Spoons

CHOOSING EQUIPMENT FOR A PARTICULAR CHILD:

1) Be familiar with types of equipment that are available commercially as well as common adaptations that can be made. Use your knowledge of what is available as "possibilities" for what might benefit a particular child.

2) Use occupational and/or speech therapists as resources for further information and/or specific help with a particular individual.

3) EXPERIMENT with what is comfortable for you and with what is effective with a particular child. (This is particularly necessary if you are using equipment in combination with developing self-feeding or drinking skills.)

WHY?

You would not try to learn to play tennis with a golf ball -- and yet, in many instances, children are "taught" feeding and drinking skills with less-than-ideal equipment. Feeding equipment is inexpensive and readily available --- to such an extent that there is almost "no excuse" for not having proper feeding equipment with which to teach the child. Selection of equipment as an aid to achieving REASONABLE GOALS should be relatively easy. Improper feeding equipment, alone, can be reason enough for a child to FAIL in achieving feeding goals.

INHIBITION

TECHNIQUE 10: USE VERBAL DIRECTION TO INHIBIT UNWANTED MOVEMENT PATTERNS

HOW?

Instructing the child verbally is often used as a technique to help the child inhibit abnormal patterns of coordination. Verbal direction or verbal cueing is only effective in selected instances and should not be used routinely with all children.

USE VERBAL DIRECTION OR VERBAL CUEING ONLY WHEN . . .

the child has a correct verbal association with the correct movement pattern. Some children have developed "wrong" verbal associations with movement patterns. For instance, if you say to a child "don't use sucking", she/he may think that "sucking" is something different than what you mean.

you have tried other techniques to inhibit the movement patterns less "consciously". Movement in the body generally occurs automatically. As adults, for instance, we don't have to think about the movement patterns necessary to chew or not to bite the cup. Verbal direction or cueing used with a child to help inhibit abnormal movement patterns may teach voluntary or conscious rather than automatic control. Eating skills may be less functional in the long run as the child may always have to "think" about how to eat or drink.

you are using it in conjunction with other inhibitory techniques. Used as the sole technique for helping a child learn to inhibit abnormal patterns of movement, verbal direction will produce inhibition only in instances where verbal direction or cueing is provided. In other words, you may teach a child through verbal direction to inhibit tongue thrusting when eating by saying, "keep your tongue in your mouth". However, there may be limited transfer of this skill to other situations -- the child may tongue thrust during speech, in mouthing toys, etc. because the verbal cue has not been provided in those situations.

DON'T USE VERBAL DIRECTION AND/OR VERBAL CUEING WHEN . . .

the child is young or has limited comprehension of spoken language.

the child has poorly developed or inaccurate verbal-motor associations.

other techniques to help the child inhibit abnormal and/or primitive motor patterns of movement are working satisfactorily.

you have not decided how and under what conditions the verbal input will be provided.

WHY?

Verbal direction or cueing seems most effective for the majority of handicapped children when used in conjunction with other techniques to provide double-input to the child who has appropriate comprehension of spoken language as well as accurate verbal-motor associations. Verbal input may be helpful in assisting the older child to consciously inhibit well-ingrained and well-established atypical eating or drinking patterns. When used, however, it is ESSENTIAL to provide feedback to the child on how well he was able to inhibit those patterns. For instance, if you say to the child "Try to keep your tongue in your mouth when I put the spoon in", you must then say "That was good. You kept your tongue in your mouth just the correct way when I put the spoon in." Verbal direction/cueing will only be maximally effective if well thought out, specific, within the child's comprehension, and used with feedback.

TECHNIQUE 11: USE JAW CONTROL

HOW?

Three-finger jaw control, originated by Swiss speech pathologist Helen Mueller (Finnie, 1975) is a procedure where physical guidance is used to provide tactile kinesthetic input to assist a child to both inhibit abnormal or primitive patterns of movement and to learn more normal patterns of oral-motor coordination.

Jaw control is a precise form of physical guidance. Therefore, independent movements will only occur when jaw control is fully faded -- or removed completely.

USE JAW CONTROL WHEN . . .

uncoordinated movements of the jaw are demonstrated. Specific areas of difficulty might include: jaw thrust forward; jaw retraction (lower jaw pulled back); poor grading and controlled movement of the jaw resulting in problems with mouth closure or with mouth opening, with chewing, or with obtaining an adequate seal around a bottle nipple or cup rim.

"anticipating" food or liquid presentation is difficult (indicated by atypical patterns when food of liquid is introduced in the visual field).

a suck-swallow (suckling) pattern of obtaining liquid from the bottle is delayed.

USE ONLY WITH CAUTION WHEN . . .

oral hypersensitivity around the mouth is present.

another person "guiding" movement in the oral musculature is not tolerated well.

the child is primarily (or only) a mouth breather and/or has difficulty coordinating respiration with feeding.

HOW TO PERFORM JAW CONTROL:

1) There are two different ways of using jaw control dependent on where you are sitting in relation to the child: front and side.

2) There should be no force or pressure applied to the child's jaw with either type of jaw control. You are guiding movement patterns.

3) The finger under the chin should be placed at the base or root of the tongue (in order to stimulate swallowing). You should try this position on yourself in order to get correct placement.

4) The finger or thumb placed at the hinge joint of the jaw is to provide stability and leverage in order to better guide the movements.

5) The finger or thumb placed under the lower lip on the chin is to provide control of mouth opening and mouth closing (as well as to be used in stimulating chewing).

WAYS TO IMPLEMENT JAW CONTROL:

1) Most children need to be gradually introduced to jaw control procedures. Some children have difficulty tolerating a "quick" change in perceptions of eating where other children have extreme hypersensitivity outside the mouth which makes the tactile stimulation from jaw control difficult to integrate. Introduce jaw control SLOWLY -- either by using it for parts of the meal and then increasing the amount of time that jaw control is used as the child adjusts OR by teaching the child to tolerate jaw control for snack time before he has to tolerate it for a whole meal OR by teaching the child to adjust the jaw control used in conjunction with a non-feeding activity (such as with playing with his hands or mouthing toys for infants).

2) Some children do not need jaw control for all of their eating and drinking activities. Use jaw control ONLY when the child needs this help. DON'T provide more control than what the child requires or the necessary skills may not be learned independently.

3) Some children only need parts of jaw control in order to eat or drink more normally. Use only the component of jaw control necessary to stimulate swallowing -- the finger under the chin at the root or base of the tongue, for instance, when the child only needs assistance with swallowing but not with jaw movement.

4) Use jaw control for long periods . . . try not to take your hand on and off the child's jaw if the child has difficulty tolerating stimulation. Each time you put your hand on or off the child's jaw, he is re-stimulated tactilely making abnormal movement patterns more difficult to inhibit.

WHY?

Jaw control is a flexible manner of providing tactile stimulation and kinesthetic cues that assist the child to inhibit atypical movements. It is effective when used both with the child who has hypertonus with atypical patterns of movement, with the hypotonic child, with the child with fluctuating muscle tone, and with the child who does not have atypical but who has primitive or immature movement patterns in the oral musculature. Jaw control inhibits the atypical tone and patterns while facilitating (guiding) the development and/or use of more normal patterns of oral-motor coordination.

TECHNIQUE 12: USE TACTILE PRESSURE

HOW?

Touch-pressure or pressure applied to a specific area through touch can be effective to assist the child to automatically inhibit atypical tone and atypical patterns of movement. The correct amount of pressure must be applied carefully to the correct location for effectiveness.

TONGUE THRUSTING:

Many patterns of tongue movement are labeled as tongue thrusting dependent on the overall type of difficulty that the child demonstrates as well as on the individual who is describing observed patterns of tongue movement. "True" tongue thrusting (Morris, 1979) occurs when:

- abnormal hypertonus and atypical patterns of movement are observed throughout the body.
- the jaw is hyperextended -- mouth open widely.
- the lips may show hypertonus and retraction (pulling back).
- the tongue shows hypertonus.
- the tongue moves primarily directly forward and protudes out of the mouth from an originally retracted (pulled back) position.

Tactile pressure may inhibit the abnormal tone and tongue thrust movement pattern WHEN USED IN CONJUNCTION WITH proper positioning of the body, proper positioning of the head in a forward position (semi-flexed), and jaw control.

APPLICATION OF TOUCH-PRESSURE TO THE TONGUE:

1) Use a spoon or wrapped tongue depressor to apply pressure. You may also, with caution, use your finger.

2) Apply firm, but not hard, pressure directly downward to the mid-tongue area.

3) You may apply pressure slightly to the back BUT DON'T apply the pressure in a forward direction or you may propel the tongue forward.

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LIP RETRACTION:

Often when the child demonstrates hypertonus in the oral musculature, the mouth may open widely, the jaw and lips retract. Lip retraction is a pulling back of the lips, more frequently the upper lip, in such a way that the child appears to be grimacing. Lip retraction is seldom seen without the mouth being slightly open, however, it is possible for the child to show hypertonus or "tightness" in the lips without severe atypical patterns being seen in the jaw or tongue. Occasionally, lip retraction alone happens in connection with associated reactions -- increases in postural tone seen in conjunction with excessive effort or concentration.

Tactile pressure may inhibit the abnormal tone and movement pattern WHEN USED IN CONJUNCTION WITH proper positioning of the body and head and with jaw control. Occasionally, the child may not need full jaw control but can benefit from infrequent tactile pressure to inhibit occasional lip retraction.

APPLICATION OF TOUCH-PRESSURE TO THE LIPS:

1) Use your finger to apply pressure.

2) Apply firm -- but not hard -- pressure directly inward between the bottom of the child's nose and the top of his upper lip. Don't apply pressure to the lip.

3) Be careful not to pull down with the pressure or, if the child is hypertonic, you may activate his muscles to draw further back ("spring back") instead of coming down into a more normal position.

WHY?

Touch pressure provides specific stimulation to the muscles which serves to reduce hypertonus and inhibit the abnormal patterns associated with that increased tone. Touch-pressure techniques can be "tricky" if mis-applied . . . and can actually produce opposite results if too much pressure is applied or if it is applied to the wrong area. Used properly, pressure can be an effective means to provide strong input to the muscles through the neurophysiological system. If you have difficulty obtaining proper results with touch-pressure, consult a physical, occupational, or speech therapist to help you with proper use of this technique.

TECHNIQUE 13: PROVIDING CONTROLLED TACTILE STIMULATION

HOW?

Many children with feeding difficulties are described as hypersensitive/hyperactive to tactile stimulation in and around the mouth. Handicapped children may have problems with eating foods of different textures, tastes, or temperatures if the child does not properly receive and integrate stimulation in and around the oral area. Controlled stimulation in and around the mouth has been suggested by Helen Mueller (Finnie, 1975) as an effective method for normalizing the child's response patterns to stimulation in the highly sensitive areas in and around the mouth.

USE CONTROLLED TACTILE STIMULATION IN THE MOUTH WHEN . . .

the child is able to integrate and respond appropriately to stimulation provided to less sensitive areas of the body (arms, legs, face) but when he has difficulty integrating an appropriate response to stimulation inside the mouth.

the child seems to have difficulty with oral perception, with knowing that food is in his mouth . . . or where it is in his mouth.

the child seems to "crave" oral stimulation -- he constantly has his hands in his mouth, explores all objects primarily with his mouth, or mouths toys/objects.

DON'T USE CONTROLLED TACTILE STIMULATION IN THE MOUTH WHEN . . .

the child is not able to properly respond to stimulation provided to other less sensitive body areas.

you are not successful in producing stimulation in such a way that the child will be able to respond normally . . . or as normally as possible.

HOW TO PROVIDE CONTROLLED TACTILE STIMULATION INSIDE THE MOUTH:

1) Use your index finger or a Q-tip to provide stimulation.

2) Provide stimulation in this progression:

Upper gums -- from midline to side and back across the midline -- each side.

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Lower gums -- from midline to side and back across
the midline -- each side.
Walking back on the tongue ON MIDLINE about half-way back.

3) Wait for a response AFTER EACH INDIVIDUAL STIMULATION.

4) Use jaw control in conjunction with controlled tactile stimulation in order to insure that the child will be able to respond as normally as possible.

5) DON'T OVERSTIMULATE!!! It is essential that the child is provided the opportunity to respond in as normal a way as possible to the stimulation which you are providing. This may mean waiting a fairly long time for a child to respond after you have provided one stimulation.

6) In most instances, it is not appropriate to put food substances on your finger or on the Q-tip. If you use sweet substances, such as honey, this may increase the saliva production and may make appropriate responding more difficult for the child.

HOW TO IMPLEMENT A PROGRAM OF CONTROLLED TACTILE STIMULATION INSIDE THE MOUTH:

1) Controlled tactile stimulation must be implemented gradually with ALL children. You should not provide any more stimulation than what the child is able to respond to in as normal a way as possible. This, initially, may mean providing stimulation to the upper gums only -- a total of two stimulations and two responses (from the child). GRADUALLY increase the number of stimulations ONLY AS THE CHILD IS ABLE TO RESPOND NORMALLY TO A GREATER NUMBER OF STIMULATIONS.

2) Controlled tactile stimulation should be provided before one or two meals per day, HOWEVER, if the child reacts in a grossly resistive manner, don't do the controlled tactile stimulation immediately before the meal or this may effect his "attitude" during feeding. One-half to one-hour before a meal is appropriate.

3) It is easy to think that if the child can respond well to controlled tactile stimulation prior to one or two meals per day that the effectiveness of the tecnnique will be increased if the number of stimulation sessions per day is increased. Instead, as the number of stimulations are increased per day, the neurophysiological system habituates (stops responding) to the stimulation. The stimulation subsequently loses its effectiveness as an "elicitor" of appropriate or more normal response patterns and the child becomes less able to respond effectively. Over a period of time, with too much stimulation, the child's system may cease to respond to the stimulation at all and either stronger or different stimulation will have to be used to produce a response.

4) The normal RESPONSE PATTERN to stimulation inside the mouth includes:

Swallowing if saliva production is adequate to warrant swallowing. (This may take several stimulations with some children.)

No increase in muscle tone -- no increased hypertonus or spasms in response to stimulation. Oral-musculature should remain "at rest".

There should be no lip retraction, tongue protrusion, mouth opening or other abnormal patterns of movement in response to stimulation.

There should be no startle or Moro reflexes elicited in response to stimulation.

If any of these or other abnormal patterns occur, stimulation should be graded down until the child is able to respond more normally.

Grade through the progression listed previously -- upper gums, lower gums, tongue, approximately 4 stimulations to each gum area -- a total of 16 gum stimulations and no more than 2 or 3 tongue walking sequences should indicate adequate response patterns. When the child responds appropriately to this amount of stimulation (18 or 19 stimulations/18 or 19 responses from the child), the program may be discontinued.

5) Stimulation inside the mouth will increase saliva production. Jaw control or a technique to stimulate automatic swallow patterns will have to be used in conjunction with controlled tactile stimulation if the child has difficulty swallowing. "Normal" response patterns may involve use of abnormal patterns of movement if the child has generally abnormal tone in the oral musculature. Appropriate techniques must be used to control the abnormal patterns of movement in response to controlled tactile stimulation. The stimulation will "act" to further reinforce and develop the abnormal response patterns if these responses are allowed.

WHY?

Providing controlled tactile stimulation to the inside of the child's mouth establishes a structured "conditioning-like" situation where certain input is provided to which the child will respond with normal-as-possible patterns of movement. Swallowing patterns often are not automatic and increases in drooling are seen in conjunction with "mouthing" of objects when children use their mouths extensively to explore the environment. Providing controlled tactile stimulation often is effective to teach the child to swallow in response to stimulation which is a functional pattern appropriate to mouthing toys. Frequently, decreases in drooling are noted because the child has become "conditioned" to responding to stimulation. The carry-over in feeding is similar in that the child has learned to swallow automatically when stimulation is occurring inside the mouth.

TECHNIQUE 14: INHIBIT GAGGING

HOW?

Often children respond to eating situations which they dislike by gagging. Gagging can be voluntary -- produced on purpose -- or it can be an automatic reflex pattern. The chances of using a voluntary gag behavior pattern can be decreased if the feeding situation is made pleasant, if the child is given some choice in the foods he wishes to eat, and if his likes and dislikes are honored. If the child continues to gag -- volitionally or automatically -- gagging can be inhibited by:

RAPIDLY FLEXING THE CHILD'S HEAD FORWARD (PUSHING HIS CHIN TO HIS CHEST) AND, WITH YOUR OTHER HAND, PUSHING IN ON THE CHEST ON THE STERNUM. This makes gagging impossible or quite uncomfortable from an anatomical standpoint.

WHY?

Verbal direction often is totally ineffective in a situation such as frequent gagging. A manner of preventing the child from gagging can be used to inhibit the behavior without calling attention to the behavior. It is important, however, that the child be positively reinforced for instances when he takes food and liquid without gagging if the inhibition of gagging is to have carry-over. It is equally important to replace that attention-getting behavior of gagging with a more appropriate "attention getter" as gagging is being extinguished.

TECHNIQUE 15: INHIBIT SUCKLING

HOW?

Primitive suckling patterns are often retained and/or remnants of this suck-swallow pattern can be observed in the child's eating and drinking when a child has been bottle fed for long periods of time or if he has been deprived of normal eating-sensory experiences in the mouth through tube feeding. Some children have difficulty learning to swallow automatically. Instead of not swallowing, however, they "adapt" the suck-swallow response pattern such that they are unable to swallow without first sucking. Swallowing has not developed independent from the infant suck-swallow-breathe-suck-swallow-breathe, etc. seen in conjunction with the suckling reflex.

The suckle pattern must become integrated in order for the child to learn more mature patterns of independent swallowing. Long-standing suckle patterns -- even if those patterns are only present residually -- seem particularly resistent to change. A combination of neurophysiologically-oriented and behavioral techniques seems to produce the greatest integration when the pattern has been maintained over long periods of time. These inhibition techniques, in turn, must be used with appropriate techniques to stimulate more normal patterns of swallowing.

LOOK FOR A PRIMITIVE SUCK-SWALLOW (SUCKLE) PATTERN WHEN . . .

1) the child sucks on his fingers during eating or drinking.

2) the child "purses" his lips together when he "seems" ready to swallow.

3) the child's tongue comes up behind his front teeth -- sometimes with a sound accompanying the movement.

4) the child's tongue makes a forward and backward movement only -- where some tongue protrusion (not "true thrusting") may be present if the child has difficulty fully closing his mouth.

SUGGESTIONS FOR HELPING THE CHILD INTEGRATE THE SUCK-SWALLOW PATTERNS:

1) Suckling may be maintained from habit alone. Use appropriate reinforcement techniques to extinguish the behavior but also use appropriate techniques to stimulate independent swallowing.

2) Tongue movement stimulation techniques should be used to develop finer tongue movements if the child's tongue moves in primitive forward-backward movement.

3) You can use verbal direction to help a child learn to inhibit the suckling pattern (if the child "knows" what sucking is).

4) Keep the child's fingers out of his mouth during eating/drinking using reinforcement techniques if the child activates the pattern by sucking on his fingers.

5) Use of controlled tactile stimulation inside the mouth is sometimes effective as a technique to teach new motor patterns (swallowing, tongue) in response to stimulation.

TECHNIQUE 16: INHIBITING "ANTICIPATION"

ANTICIPATION IS: An AUTOMATIC RESPONSE -- usually of increased tone (hypertonus) with atypical movement patterns but sometimes of increased involuntary movements.

Generally only present in children with NEUROLOGICAL INVOLVEMENT, particularly in younger children or in children with severe neurological handicaps.

"ACTIVATED" by verbal direction or by viewing food.

Production of exaggerated, abnormal patterns in the oral musculature which makes it less likely for the child to take food/liquids in a normal manner (despite motivation to do so).

HOW?

DON'T -- SAY things like "Are you ready?" or "Open your mouth!"
ALLOW the child prolonged viewing of the food.
MAKE a "big deal" about eating.

DO ----- Prepare the child for food/liquid presentation by having external control of the mouth -- use jaw control or prepare the child verbally by saying "quiet mouth" or some other verbal phrase which will help the child inhibit the activation of the automatic response.

Work on inhibiting the anticipation response separate from daily feeding sessions . . . Initially, use fingers, a toy or some other non-food object, control the child's jaw using jaw control or verbal phrasing, and work on approaching the mouth without activation of anticipation. Use foods such as animal crackers to teach adaptation to food and child will achieve:

GOAL: FOOD/LIQUID CAN APPROACH THE MOUTH WITHOUT ACTIVATING THE "ANTICIPATION" RESPONSE

WHY?

The child may have difficulty learning to eat or drink in a normal manner if the anticipation response is not inhibited. Oral pathology will become associated with eating and/or drinking as a "normal" way of eating for the child. The child may be difficult to feed and/or may associate any "mouthing experience" with abnormal patterns of movement.

FACILITATION

TECHNIQUE 17: USE VERBAL DIRECTION TO FACILITATE DESIRED MOVEMENT PATTERNS

HOW?

Verbal instruction is too frequently used as a technique to help the child develop more normal patterns of oral-motor coordination. Verbal input to help the child learn normal oral-motor coordination skills should not be used routinely but should be used only in selected instances where the procedure will be maximally effective. Teaching the child to move more normally using verbal direction alone often develops the movement pattern only partially, only in selected situations, and often for voluntary execution rather than for automatic function.

USE VERBAL DIRECTION OR VERBAL CUEING ONLY WHEN . . .

the child has a correct assocation of the verbal input with the motor pattern.

you have tried other techniques to help the child learn the more normal movement patterns in an automatic rather than volitional manner.

the verbal direction or cueing is being used in conjunction with other facilitation techniques so that the correct motor pattern is reinforced.

(Further explanation is provided under verbal direction as an inhibitory technique - Technique #10).

DON'T USE VERBAL DIRECTION AND/OR VERBAL CUEING WHEN . . .

the child is young and/or has limited comprehension of spoken language.

the child has poorly developed and/or inaccurate verbal-motor associations.

other techniques to help the child develop more normal skills are producing satisfactory results.

you have not decided how and under what conditions the verbal input will be provided.

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WHY?

Verbal direction is effective as an instructional method only to the extent that the child comprehends what you are talking about. Language concepts are rooted in sensory-motor experiences to which the child "attaches" the linguistic symbol. The normal infant experiences his world initially through sensory-motor interaction with his environment. Piagetian (1954) theory, for instance, suggests that language is attached to movements, but that the movements must first be in the behavior repertoire. A child may have no referant for what you are talking about if you give food to chew and say, "chew". Chewing has not been experienced yet or learned. Only after the movement pattern of chewing is present can you then help develop the verbal-motor association by saying "chewing" when chewing occurs. Later, with competence with chewing, you may be able to discontinue other techniques or fade those techniques to use verbal input as a step toward total independence.

TECHNIQUE 18: USE IMITATION

HOW?

Young children acquire a great deal of information about themselves, others, and relationships within their environments through imitation. Initially, normal children are able to imitate only immediate events that are visible. Later, imitation of invisible actions, immediately present, are imitated. Still later, delayed imitation occurs. Much of a young child's speech learning is believed to occur through imitation. The child babbles, imitates his own sounds, imitates sounds of others, and imitates words and sentences. With these children, imitation is often a successful technique to develop more normal oral-motor coordination.

USE IMITATION WHEN . . .

the child is able to imitate actions not visible to him. The child's mouth is invisible to him so that he will have difficulty imitating oral-motor movements unelss he is able to perform this level of imitation.

the child is physically able to produce a normal response pattern. If the child has neurological involvement, he may try to imitate you but will be unsuccessful because he does not have the physical capability to accurately reproduce the action which you are producing. Imitation can be used in these situations ONLY if additional help is provided so that the child will have the assistance to imitate accurately. Jaw control is sometimes helpful in this situation.

DON'T USE IMITATION WHEN . . .

the child does not have well developed imitation skills. In teaching fine-motor oral-coordination, it is frequently too confusing for the child to be learning imitation and oral-motor coordination simultaneously.

HOW TO TEACH FEEDING THROUGH IMITATION:

Imitation is seldom successful as the only procedure used to teach feeding -- even when the child has well-developed imitation skills with the capability to respond with normal patterns of movement. Reinforcement procedures should be employed to emphasize correct responses (imitations). Sometimes imitation is more effective if it is paired with verbal direction. Often other techniques must be employed in conjunction with imitation. There are many books available which include information on how to teach imitation to developmentally delayed and/or mentally retarded children. Acquainting yourself with additional materials will help you to understand the development of imitation in normal and handicapped children as well as effective ways to teach this skill.

WHY?

Children learn in a variety of ways -- throughout life. Some methods of learning or acquiring information about the environment are stronger at one period of a child's life than in others. Imitation can be an effective, interesting, and "motivating" way of learning any new skill for some children. Imitation can be successful in teaching these types of children more normal patterns of oral-motor coordination required for eating and drinking.

TECHNIQUE 19: FACILITATE MORE NORMAL JAW MOVEMENT

HOW?

The tongue, lips, and cheeks operate in combination with coordinated jaw movement. The child who has difficulty with smooth jaw movement is likely also to lack normal patterns of movement in the tongue, lips, and cheeks.

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1) Jaw Control is effective both to inhibit abnormal jaw movements (refer to Technique 11: Jaw Control) as well as to facilitate more normal movements. The thumb (front control) or the finger (side control) placed on the child's chin below his lower lip is used as a "lever" to assist the child in opening and closing his jaw properly. With some children, moving the thumb or the finger in a circular movement is helpful to stimulate rotary movements of the jaw necessary for proper chewing. This will NOT be effective if the child's jaw is retracted (pulled back) or if his jaw is thrusting forward. It is necessary first to have the child's jaw in as normal alignment as possible.

2) It is sometimes more helpful to facilitate normal movement by pulling forward on the jaw from under the child's chin if the jaw is severely retracted. The thumb is then placed, as a stabilizer, on the child's chin and can facilitate rotary movement of the jaw when moved in a circular movement. This will NOT be effective if the child is very hypertonic but WILL BE effective with the severely hypotonic child, the child with fluctuating tone, or with the low-toned (such as Down's syndrome or psychomotor retardation) child, particularly where the retracted jaw is a functional pattern associated with prolonged sucking or with prolonged mouthing of fingers or objects.

HOW TO FACILITATE FORWARD JAW MOVEMENT:

1) Spread your first two fingers apart and place them (palm upward) under the child's chin on each side where the chin and the neck come together.

2) Place your thumb, as a stabilizer, on the child's chin under his lower lip.

3) The thumb should not push against the child's chin or it will push his jaw back into retraction.

4) The fingers are used to GENTLY pull the child's lower jaw forward into alignment with his upper jaw. Pressure should not be exerted or the child may resist and movement may occur against your movement causing further retraction instead of facilitating jaw alignment.

TECHNIQUE 20: FACILITATE MORE NORMAL LIP MOVEMENT

HOW?

Tactile techniques can be used to stimulate movement of the lips when the child's muscle tone in the oral area is relatively normal. These techniques require good observation and "feel" of the child's muscle tone because the techniques will increase hypertonicity (decrease the child's possibilities of performing normal lip movements) when misused in conjunction with abnormal muscle tone.

1) Pushing down on the tongue with the bowl of the spoon or with a wrapped tongue depressor stimulates movement of the upper lip to "retrieve" food from the spoon. Pressure applied should be firm but not hard and should be applied directly downward on the child's tongue. It is then necessary to WAIT for the response. Initially, the response latency may be several seconds or longer but spontaneous movements of the upper lip should become more rapid as stimulations are increased over time. This will NOT be effective if the child has a severely retracted upper lip. It will first be necessary to inhibit the retraction, particularly if the retraction is associated with hypertonicity.

2) Candy or sweet substances can be used on your finger or on a Q-tip to facilitate movement of the lips. Place the candy stick, your finger, or Q-tip at different angles in relation to the child's lips to see if he is able to "grab" with his lips alone.

3. Sometimes, teaching straw drinking to a child will help him learn to use his lips more effectively. The child should be able to perform fairly normal movements in response to tactile stimulation or stimulation with sweet substances before straw drinking is used. Suggestions for how to teach straw drinking:

   a) Fill a straw with liquid and put your finger over the end of the straw to hold the liquid inside the straw.

   b) Place the straw in the child's mouth between his lips -- but not on his tongue or between his teeth.

   c) Use jaw control to help him close his mouth on the straw OR encourage lip closure using verbal direction, imitation, or tactile cueing if the child does not need physical guidance provided through jaw control.

   d) Release your finger on the end of the straw and allow a SMALL amount of liquid to enter the child's mouth after he has closed his lips properly OR has approximated lip closure around the straw.

   e) Leave the straw in the child's mouth and wait for him to swallow the liquid.

   f) Release your finger to allow more liquid into the child's mouth and repeat this procedure until he is able to demonstrate good lip closure around the straw with some pressure for "pulling" liquid from the straw.

   g) The straw should not be placed in the cup until after the child is able to close his lips properly and suck. Initially, a small amount of liquid should be placed in the cup so that the child will be successful. As he develops increasing competence, greater amounts of liquid may be put in the cup.

h) You are not placing the straw correctly in the child's mouth if he bites rather than sucks on the straw. He will use his lips improperly and straw drinking will not help to stimulate more normal lip movements when biting occurs. Glue the straw into a small lip so that only a short length of the straw protrudes if you have difficulty with placement. This will make proper placement easier as the straw will not extend far enough to go between the teeth.

4. Tactile stimulation (Refer to Technique 13: Controlled Tactile Stimulation) is effective to facilitate more normal lip movements when the child is hypotonic (low toned). DON'T USE these techniques when tone is abnormal. If the child is extremely hypersensitive and is unable to integrate touch around the outside of the mouth, DON'T use these techniques until fairly normal responses occur with touch as the stimulus.

TECHNIQUE 21: FACILITATE MORE NORMAL TONGUE MOVEMENT

HOW?

Tongue movements show great variety both in the normal and the atypical child. Many hypotonic children simply have "sluggish" tongue movement which lacks diversity both in quantity and quality of patterns. Other children show only infant-like or primitive tongue movement patterns. Primitive patterns often are retained through "habit" but "block" the development of a wider range of tongue movement. Still other children may be apraxic and lack proper knowledge of "what to do" with their tongues. Other children may have increased tone in the tongue -- hypertonic tongues that move in atypical patterns associated with that increased tone. Techniques suggested in this section to facilitate greater tongue mobility are NOT APPROPRIATE for use when the tongue is hypertonic. These stimulation techniques are effective when the child's tongue is "sluggish" or if used with inhibition when tongue movements are primitive. Modification of these techniques will be necessary in order to make them beneficial for the child with oral apraxia.

1) Walking back with a spoon or with a tongue depressor provides tactile stimulation to the tongue. This will not generally, in itself, stimulate movement of the tongue. It can be used when the child has sluggish movement or primitive movement PRIOR to stimulating actual tongue movement.

2) USE FOOD AS A FACILITATOR OF TONGUE MOVEMENT:

   a) This can be effective if the child has a normal response mechanism with normal response capabilities. Use of food will produce an atypical response which will serve to reinforce atypical patterns of rather than stimulate more normal paaterns of movement if the child has abnormal or primitive tongue movements.

   b) Food should be used only in conjunction with inhibition techniques when the child has primitive patterns of tongue movement.

   c) Food substances can be placed directly in the mouth or can be used on finger, depressor, or Q-tip to stimulate tongue movement outside of the mouth. It is best to use this as a game with limited verbal direction rather than in a very cognitive manner. Saying to the child, "Can you lick the popsicle?" is more effective than saying "Move your tongue to the left side so that you can lick the popsicle."

   d) Place the food in such a position that desired tongue movement will be elicited. Place your finger or the Q-tip inside the mouth on the side to which you want the tongue to move.

3) USE OF IMITATION AS A FACILITATOR OF TONGUE MOVEMENT:

a) Imitation may produce tongue movement of a volitional rather than automatic type unless used as a game. Use limited verbal direction to assist the child to develop automatic tongue movements.

b) Imitation is only effective for tongue movements outside of the mouth. The child will not be able to "see" what is happening inside your mouth unless the mouth is wide open. It is not beneficial to teach tongue movement with an open mouth if you are attempting to teach tongue movement in relation to eating!!

c) Imitation seems particularly effective when sound is produced with the movement. This also serves to provide auditory input as well as visual input to the child to assist him to learn new patterns of movement.

d) Imitation sometimes is a good way to encourage a child with extreme oral hypersensitivity to begin using his mouth more appropriately. It can be especially effective when the child is unable to tolerate touch in and around the mouth.

4) Touch alone, in most instances, is not "strong" enough stimulation to facilitate more normal tongue movement when the child has a "sluggish" tongue" but is effective in providing tactile stimulation to the tongue (without requiring a specific type of response). This is often good prior to other activities (as in #1) or with the child with oral apraxia . . . or to increase oral perception in general.

5) Some children need "tongue exercise programs" done separately from feeding sessions. Children with "sluggish tongues" or with primitive movement patterns will benefit from activities designed to facilitate tongue movement separate from eating. These same children, however, will also need to develop tongue movements for eating. Carry-over from "food or imitation games" to eating and drinking is not always automatic. Most children will need emphasis on tongue movements both in feeding and through additional programming.

TECHNIQUE 22: FACILITATE SWALLOWING

HOW?

Many children have difficulty swallowing automatically -- without thinking about swallowing. Some children appear to swallow automatically, however, further observation

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often shows that the response is inconsistent -- or that foods or liquids, but not saliva, may be swallowed. Many techniques have been suggested to stimulate swallowing, but those listed below have been reported as effective in clinical settings.

1) Controlled tactile stimulation (see Technique 13) is generally used to inhibit hypersensitivity to touch in and around the oral area. Stimulation to the oral area generally produces increased saliva requiring swallowing as the normal response. Subsequently, this activity can be used with the child who is not hypersensitive to touch but who does have difficulty swallowing automatically.

2) Jaw control (see Technique 11) can be used both to inhibit abnormal movement patterns and to facilitate more normal jaw alignment and movement. The third finger, which in both front and side jaw control is placed under the child's chin at the base of his tongue, can be used to stimulate swallowing by applying firm -- but not hard -- pressure to the root of the tongue. Experiment on yourself to "get a feel for" where the finger should be placed as well as how much pressure should be exerted in order to elicit swallowing.

3) Firm tactile pressure can be applied under the child's chin at the root of his tongue without jaw control in order to facilitate swallowing when the child does not have problems that warrant use of full jaw control.

4) Stroking upward or downward on the throat helps to assist some children to develop the idea of swallowing. The index finger, used in a sideways position with slight pressure, seems to work best. Downward stroking may retract the jaw wheras upward stroking may help bring the jaw into better alignment. Consider the alignment of the child's jaw (pulled back, pushed forward, normal) when selecting stroke direction.

<u>WHEN FACILITATING SWALLOWING</u> . . .

don't use verbal direction alone or the child may learn to swallow only when he is told to do so.
don't use methods such as holding the child's nose which might cause the child to choke or aspirate instead of swallowing.
don't use methods which "hold" the mouth shut for prolonged periods or the child may choke, aspirate or suffer respiratory distress if he is a mouth breather.

WHY?

Swallowing is only functional when it is performed automatically -- without thinking. The child will learn to swallow only under specific conditions if he is taught to swallow only when reminded. The procedures suggested in this section facilitate swallowing without drawing a great deal of attention to the "act" of swallowing. They assist the child to learn to respond appropriately to stimulation by swallowing automatically. Subsequently, there will be greater transfer of skills from the training to other functional situations than will occur if the child swallows voluntarily and in response only to verbal direction.

TECHNIQUE 23: FACILITATE CHEWING

HOW?

Many handicapped children have difficulty with the chewing-swallowing process, however, very few children need to be taught the oral-motor skill of chewing. It is possible for the child to chew without further teaching when other prerequisite conditions are "right".

1) Children will only chew if the food requires chewing. Crunchy, chewy, or crisp foods are usually best to begin with since these foods provide auditory as well as tactile input (Technique 1).

2) Place the food on the teeth, at the side of the mouth so that the child does not also have to use tongue movements to move the food from the front to the side of the mouth.

3) Use a food that is "rubbery" that you can hold onto outside the child's mouth to provide experience with chewing without requiring fine tongue control. Foods such as dried fruit, slightly cooked carrots or celery, beef jerkies (Slim Jims), chewy bread crusts or strips of raw or rare beef work well.

4) Imitation may help if the child has difficulty initiating chewing. You should chew so that the child has someone to imitate.

5) Use of jaw control may help guide the child's movements in the jaw from up and down to rotary if he has difficulty with rotation movements.

6) Some children have strong <u>biting</u> responses which cause the jaw to move totally in an up and down pattern. DON'T MISTAKE BITING FOR CHEWING.

WHY?

Chewing food is a complex process which requires proper tongue movements, movement of teeth and jaw, and proper swallowing. Some children have difficulty with chewing, movement of the teeth and jaw, but more frequently, children have difficulties with tongue movement or swallowing or have been fed soft foods which don't require chewing. Generally, children who lack "chewing" experience, who have strong biting, or who have passive or limited movement are the only children who will need specific work on chewing. More often, children will need further help with tongue control or with swallowing.

TECHNIQUE 24: DEVELOP ORAL PERCEPTION SKILLS

HOW?

Many children have poor perception of what substance is in their mouths or the location of food in their mouths. Awareness that something is in the mouth is necessary in order to respond to that stimuli. Localization of the stimui is necessary in order to respond appropriately (differentially) to that stimuli. Many children with passive or limited oral-motor movement have difficulty with perception of food or food location from tactile or temperature input alone.

WAYS TO ASSIST THE CHILD TO DEVELOP ORAL PERCEPTION:

Awareness:

1) Expose the child (who is not hypersensitive) to substances that have strong tastes. Some spices are good or substances such as oil of orange, Realemon, or foods with strong flavors.

2) Generalized stimulation inside the mouth may be helpful. Rubbing the child's gums and teeth with the fingers, "playing" with the child's tongue or counting his teeth will provide tactile stimulation to the oral area.

3) Pairing verbal with tactile input may help the child to develop an awareness of his mouth. Playing games such as finding the tongue, or teeth, or asking the child what's hiding at the top of his mouth provide verbal and tactile information to the child.

Localization:

1) Asking the child to identify where he was touched is effective. The child does not have to answer verbally but may indicate yes or no. Basic verbal comprehension skills must be present before this activity will be beneficial. Saying things like "Where's your tongue? Did I touch your tongue?" can make this activity game-like.

2) Information can be provided by describing what you are doing (i.e., "I touched your tongue. I touched it right in the middle") for the child who is unable to respond adequately enough in the above situation.

3) Motor responses can be encouraged by saying "I have your tongue. I'm going to put it between your front teeth." Passively place the child's tongue, then ask him to repeat the motion on his own. (Can you put it in the same place?" or "Now you put it in the same place.")

Discrimination:

1) Children who are functioning at a fairly high cognitive level can be asked to identify dimensions appropriate to eating:

   same or different taste
   same or different temperature
   same or different texture -- lumpy, smooth, crunchy, slimy, etc.

WHY?

The child who is not aware of something in his mouth may have difficulty integrating that input with the proper motor response. Often, severely hyposensitive children have difficulty perceiving that something is in their mouths. Children with oral apraxia also often lack good perception of sensory input. Coordinated motor response, oral-motor coordination, requires perception of the input, integration, and coordinated motor response. It is as detrimental for the input side of the channel to be mal-functioning as it is for the child to lack a normal response mechanism. Sometimes, however, improvement in oral perception can be slow or it may be difficult to select proper input situations to which the child can respond. Consultation with a speech therapist should be helpful to identify other approaches to facilitate oral perception skills if you suspect that the child is having difficulty in this area or if the general activities suggested in this section are not effective.

REINFORCEMENT

TECHNIQUE 25: USE REINFORCEMENT TO CHANGE EATING AND DRINKING SKILLS

HOW?

Each act of behavior consists of three basic parts: the ANTECEDENT(S), those events that precede a response; the RESPONSE, a behavior that occurs as a result of the antecedent conditions; and the CONSEQUENCE(S), those events that follow the response. CONSEQUENCES can strengthen or weaken the behavior that comes before those events. The term REINFORCEMENT is used to describe those events that strengthen the behavior; for instance, a food or liquid that appears to be preferred.

Some children with feeding difficulties like to eat but some do not. Children with long standing problems taking in food or those who have been maintained for many years on strained foods may not enjoy either the process of eating/drinking or the foods or liquids themselves. Therefore, the act of eating or drinking and the foods themselves, may NOT be reinforcing. Some children may prefer certain foods, food textures, tastes, or temperatures while disliking others. Foods or liquids that are not normally part of the child's diet may be reinforcing because of the novelty of these items. Soft drinks, milkshakes, unusual fruit juices, or coffee (for older handicapped individuals) may be reinforcing because of the unusual situation of receiving those substances. Similarly, ice cream, chewy foods, sweets, atypical fruits and vegetables, peanut butter and other foods are not frequently included in the diets of many severely handicapped children.

<u>USE FOOD AND LIQUID EFFECTIVELY SO THAT SUBSTANCES THAT REINFORCE CORRECT BEHAVIOR ARE USED IN EATING AND DRINKING PROGRAMS:</u>

1) Identify the foods and liquids that are typically PREFERRED by the child. Parents and child care workers can help make a listing.

2) List TYPICAL FOODS AND LIQUIDS that a child receives.

3) Think of foods and liquids that might be tried in the feeding program that are not usually part of the child's diet. List these foods/liquids.

4) Try these foods/liquids with the child to determine response. If response is positive, include these foods/liquids in the eating and drinking program.

5) Start eating and drinking programming with foods and liquids that are consequences that are likely to STRENGTHEN or INCREASE the DESIRED RESPONSE. Don't expect eating and drinking behavior to change in a positive way if non-preferred foods are used to teach acquisition of desired oral-motor coordination skills.

6) DO NOT ALLOW foods/liquids that are REINFORCING to reach the mouth UNLESS the desired behavior is being demonstrated by the child. In other words, if you know that ice cream functions to strengthen behavior and the child's tongue is protruding from the mouth, stop the spoon before the ice cream gets to the mouth. Allowing the child to receive the ice cream with tongue protrusion will strengthen or increase tongue protrusion (rather than the desired response of having the tongue in the mouth).

7) Generalize (extend) the desired response in eating/drinking to less preferred or less reinforcing foods and liquids.

FOODS AND LIQUIDS are NATURAL REINFORCERS (CONSEQUENCES) to eating and drinking. However, other events also follow a desired response. Some of these events would be labeled as CONTRIVED CONSEQUENCES. The responses of the person feeding the child -- both verbal and non-verbal -- are examples of CONTRIVED CONSEQUENCES. These events can also be REINFORCING or NON-REINFORCING. An important point in understanding the concept of reinforcers is to remember that what should be reinforcing may not function to strengthen behavior. In other words, if the behavior of the child does not change when the feeder says "Good girl. I liked how you ate the cookie," this phrase is not a reinforcer. Motivating Behavior Change (Bricker & Campbell, 1982b) provides further information on the is-does notion in reinforcement.

Many handicapped individuals do not understand the content of language that is spoken to them and may respond to inflection, rate, intonation, or volume. Therefore, verbal reinforcement or what is often termed SOCIAL REINFORCEMENT may not function to strengthen behavior since the student may not differentiate between sentences such as "I like how you are eating" and "why did you do that?" if those phrases are spoken quietly and without substantial change in speech patterns. In addition, physical acts such as hugging, patting, or touching may not be responded to negatively by many handicapped children but may also NOT STRENGTHEN behavior.

The individual who is feeding the child must be sensitive to the ways in which the child's behavior is responded to by the "feeder".

1) POSITIVE responses that are CONSISTENT may STRENGTHEN behavior.

2) NEGATIVE responses and/or IGNORING that is done consistently may weaken desired or non-desired behavior.

3) NEGATIVE responses (such as yelling, displeasure, etc.) may function to strengthen behavior if these responses are not viewed as negative by the child.

4) POSITIVE responses that are made INCONSISTENTLY and IN COMBINATION with NON-RESPONSE or IGNORING may neither strengthen or weaken behavior.

WHY?

CONTROLLING the consequences to the behavior demonstrated by the child in either eating or drinking activities can help to improve, strengthen, or increase desired behavior. Controlling the consequences can also assist in decreasing or eliminating undesired forms of behavior. For instance, saying "no!" each time the child's tongue protrudes may help to eliminate or decrease the rate of tongue protrusion. Insuring that a child receives ice cream (a preferred food) only when the upper lip is used to take food off the spoon can increase or strengthen the use of the upper lip in eating.

Most often, in feeding programs, children are taught the initial steps in eating or drinking without controlling foods or liquids for their potentially reinforcing aspects. No child will rapidly learn to keep his tongue in his mouth to eat a highly undesired food like, for instance, spinach!! Rather, the child is likely to use the tongue to push the undesired food out of his mouth!! Use highly preferred or unusual foods to teach a child the initial steps in eating or drinking. Then, extend the newly acquired responses to other less preferred foods/liquids. Use highly reinforcing contrived consequences to strengthen behavior. Pay the child off in a big way for doing well!! Many handicapped students have to work very hard in order to demonstrate the highly complex and coordinated movements of the oral musculature necessary for proper eating and drinking. Letting them know about their accomplishments will help to keep the child on his way to learning more complicated movement patterns.

ADDITIONAL RESOURCES

WRITTEN MATERIALS

The following materials will provide further assistance and information of the oral-motor coordination in eating and drinking. This is not a total bibliography of all references available in the area of pre-speech feeding treatment, but rather provides a sample of those that focus on intervention in eating. Additional information can be located by using the bibliographies of each of these resources to reference the reader into the more technical and less practical reference material related to disorders in eating and drinking.

Alberto, P. A., & Troutman, A. C. Applied behavior analysis for teachers. Columbus: Charles Merrill, 1982.

This recent book clearly describes behavior analysis procedures as applied to programming for severely handicapped students. This basic reference will be particularly helpful to people with no background in behavior management techniques.

Alexander, R., & Bigge, J. Facilitation of language and speech. In J. L. Bigge (Ed.), Teaching individuals with physical and multiple disabilities. Columbus: Charles Merrill, 1982.

Guidelines for assessment and intervention are clearly described and illustrated in this chapter. Normal development as well as operational descriptions of atypical oral-motor coordination are provided. A rationale for intervening with feeding disorders is provided as related to the development of normal oral production in speech and language.

Campbell, P. H. Teaching oral-motor skills to severely handicapped children. In G. Edgar & R. York (Eds.), Teaching the severely handicapped (Vol. 4). New York: Grune and Stratton, 1979.

This chaper describes normal patterns of movement used in eating as well as the primary deviations that have been observed in children with movement disorders. Information should be of interest to clinicians who are undertaking detailed descriptions of oral-motor coordination in eating activities.

Campbell, P. H. Teaching self-care skills to severely handicapped students (monograph). Akron, Ohio: Children's Hospital Medical Center, 1982 (revised edition).

This monograph provides information on teaching self-care/domestic living skills including self-feeding and self-drinking. Information is presented in a problem-oriented format allowing the parent or practitioner to identify key problems with self-care skill competence and to implement methods designed to teach children with movement disorders to perform self-care skills independently.

Campbell, P., Green, K., & Carlsen, L. Approximating the norm through environmental and child-centered prosthetics and adaptive equipment. In E. Sontag, N. Certo, & J. Smith (Eds.), Educational programming for the severely and profoundly handicapped. Reston, Virginia: Council for Exceptional Children, 1977.

This article describes types of adaptive equipment that can be used to position handicapped children for various functional activities including oral-motor coordination.

Connor, F.P., Williamson, G.G., & Sieppe, J.M. Program guide for infants and toddlers with neuromotor and other developmental disabilities. New York: Teacher's College Press, 1978.

Chapters in Nutrition, Movement, and Pre-Speech will be particularly helpful for persons interested in children with feeding disorders. Normal pre-speech development is presented as well as sample activities and interventions for children with pre-speech difficulties.

Morris, S.E. Program guidelines for children with feeding problems. Edison, N. J.: Childcraft, 1977.

Information presents clear ideas for methods of assessing and remediating difficulties with feeding disorders. Key issues related to feeding are discussed separately and cross-referenced to allow the parent or practitioner to try procedures to remediate feeding problems.

Morris, S. E. The normal acquisition of oral feeding skills: Implications for assessment and treatment. New York: Therapeutic Media, Inc., 1982.

Information presented in this monograph is based on a conference related to development of oral-motor coordination. The emphasis is on studies of both normal development and atypical patterns of movement and should be interesting to the clinician who wishes to understand the development underlying oral-motor coordination.

Morris, S. E. Pre-speech assessment scale. New Jersey: J. A. Preston Corporation, in press.

The Pre-speech Assessment Scale provides an assessment approach for evaluating pre-speech disorders in children. The scale includes items pertaining to use of oral-motor coordination in sucking, swallowing, chewing, biting, and other oral-motor skills as well as provides a mechanism for assessing change in each of these areas. The scale relates oral-motor skills against a standard of "normal development" and therefore may be more helpful as a method of problem identification than as a guide to intervention approaches.

Mueller, H. Feeding. In N. Finnie (Ed.), Handling your young cerebral palsied child at home. New York: Dutton, 1975.

This book discusses movement, in general, as well as provides examples of intervention procedures for increasing normal movement responses. Positioning to increase oral-motor coordination as well as techniques to increase oral-motor control are illustrated.

Mysak, E. D. Neurospeech therapy for the cerebral palsied. New York: Teacher's College Press, 1980.

The chapter on "Neurospeech Therapy: Stimulation of Basic Movements" provides specific examples of methods of intervention to increase oral-motor coordination in feeding. Illustrations suggest benefits of different types of positioning as well as demonstrate feeding intervention techniques.

Snell, M. (Ed.). Systematic instruction of the moderately and severely handicapped. Columbus: Charles Merrill, in press.

A textbook related to programming for severely handicapped students, this book covers basic curriculum and methodology useful for teachers and other programmers.

Sobsey, R. Facilitation of normal oral-motor responses in developmentally delayed and neurologically impaired children. Morgantown, W. V.: West Virginia University, 1981 (final report, project #443AH00096).

This final report describes a series of research investigations that were undertaken to validate the effectiveness (or non-effectiveness) of various procedures designed to facilitate normal oral-motor responses in handicapped children. The report provides a comprehensive review of the literature as well as results of intervention when applied to severely multihandicapped school-age children.

Wilson, J. A. (Ed.). Oral-motor function and dysfunction in children. Chapel Hill: University of North Carolina, 1978.

This monograph summarizes a symposium on oral-motor functioning held at Chapel Hill in 1978. However, papers include information on the treatment of children with problems as well as reports of research related to oral-motor dysfunction.

ORGANIZATIONS

Some of the organizations listed below have been established by professionals and others have been started by parents or for parents of children with handicapping conditions. Many of these organizations have local chapters that can be located by looking in the phone directory or by inquiring at a hospital or center where handicapped children receive services.

Many of the organizations publish written materials related to programming for handicapped children and/or maintain resource name files. Some organizations may be able to provide you with names of individuals who can help you work with a child with feeding disorders.

Association for the Severely Handicapped (TASH)
7010 Roosevelt Way, N.E.
Seattle, Washington 98115
(206) 523-8446

This organization publishes a newsletter which includes a column for parents by parents of handicapped children. Parents and professionals are encouraged to attend both local chapter and national meetings and are represented in all aspects of the organization. A limited number of publications are available, some of which address feeding disorders.

American Occupational Therapy Association, Inc. (AOTA)
1383 Piccard Drive
Rockville, Maryland 20850
(301) 948-9626

This organization is made up of occupational therapists working with individuals of all ages who have various motor and psychiatric disabilities. However, the national office will respond to requests for basic information about the policy and practice of occupational therapy including providing resources on eating and drinking.

American Physical Therapy Association (APTA)
11156 15th Street, N.W.
Washington, D.C. 20014
(301) 897-5700

This organization is made up of physical therapists who are involved with all aspects of physical restoration. The national office will respond to requests for basic information about the policy and practice of physical therapy.

American Speech, Hearing, and Language Association (ASHA)
10801 Rockville Pike
Rockville, Maryland 20852
(301) 897-5700

This is the professional organization for speech pathologists and audiologists. Like the associations representing physical and occupational therapists, this organization is made up of certified speech therapists and audiologists but will respond to requests for information about speech and hearing therapy - including improving oral-motor coordination and other speech processes.

Council for Exceptional Children (CEC)
1920 Association Drive
Reston, Virginia 22091
(703) 620-3660

This organization consists of the variety of professionals involved in education of children with learning exceptionalities. CEC is divided into many divisions including divisionsfor early childhood education and for children with physical disabilities. The organization largely consists of professionals working with exceptional children but publishes many materials which are of interest to individuals working with children with motor delay. This group responds to requests for information and welcomes participation at local, state, and national meetings.

Down Syndrome Congress
1640 W. Roosevelt Road
Room 156-E
Chicago, Illinois 60608

Membership Committee
P.O. Box 1527
Brownwood, Texas 76801
(312) 226-0416

This organization was founded by parents of children with Down syndrome. Some local chapters have been organized in various parts of the country. The congress sponsors an annual national meeting and publishes a newsletter with information pertaining to Down syndrome children.

Down Syndrome - Papers & Abstracts for Professionals
P.O. Box 620
2525 Belmont Rd., N.W.
Washington, D.c. 20008

Subscription:
10404 Leslie Court
Silver Spring, MD 20902

This organization publishes quarterly newsletters on Down syndrome that are available to parents and professionals who are members. The purpose of the newsletter is to review and analyze recent professional literature pertaining to Down syndrome.

Muscular Dystrophy Association
810 Seventh Avenue
New York, New York 10019
(212) 586-0808

Specifically centered around children and adults with muscular dystrophy and other neuromuscular disorders, this organization has local chapters which distribute equipment and which sponsor free medical clinics for treatment of these disorders. Several publications are available from the national office.

National Association for Retarded Citizens (NARC)
P.O. Box 6109
Arlington, Texas 76001
(817) 261-4961

Established by parents of handicapped children, this organization now has numerous local chapters, sponsors many educational and interdisciplinary programs for handicapped children (largely preschoolers and adults), and has a number of publications available for purchase. The focus of the organization is on children with developmental delay or disabilities. Parents are welcome participants on both the local and national level.

National Easter Seal Society for Crippled Children and Adults 2023 West Ogden Avenue Chicato, Illinois 60612 (312) 243-8400	This organization has many local chapters which sponsor infant, toddler, and preschool programs for children with motor delay or handicap. In addition, many useful publications are available from the national office.
National Foundation - March of Dimes 1275 Mamaroneck Avenue White Plains, New York 10605 (914) 428-7100	Treatment of children with birth defects is the major emphasis of this organization which spends most of its funds on research to prevent various types of birth defects. Publications which explain congenital problems are available from this organization.
National Society for Autistic Children (NSAC) 169 Tampa Avenue Albany, New York 12208 (508) 489-7375	Membership in this group consists of both parents and professionals. Several publications, especially for parents, are available from NSAC and parents are an important part of the organization's annual national conference.
Spina Bifida Association of American 343 South Dearborn, Suite 319 Chicago, Illinois 60604 (312) 662-1562	This organization was founded by parents and has many local chapters across the country. The local chapters frequently have their own names (such as "Myelomeningocele Mothers"), but contacting the national organization can produce names of organizations located in your area. The association sponsors an annual meeting, has regular newsletters, and many publications of interest to parents of children with spina bifica/myelomeningocele.
United Cerebral Palsy Association, Inc.	The national organization of UCPA sponsors an annual meeting, supports research to prevent cerebral palsy and to study the cause of this motor problem, and supports activities of local and state affiliates. Many local UCP organizations provide services for young handicapped children and for adults, as well as sponsor training courses for parents of cerebral palsied and developmentally delayed children. Information about cerebral palsy can be obtained both from the national and local organizations - including materials on curriculum and movement skill acquisition.

Taken from: Hanson, M. J., & Campbell, P. H. Teaching your motor delayed child. Baltimore: University Park Press (in press, 1983).

ADAPTIVE EQUIPMENT

Equipment is designed to help motorically impaired children maintain correct body alignment, acquire mobility skills, and perform various related skills such as eating and drinking, dressing, toileting, communication, or playing. Many therapists and teachers have creative ides that can be fabricated into equipment designed to help make a handicapped children easier to feed. In addition, many new products are commercially marketed each year so that if a desired piece of equipment cannot be located in a current catalogue, check with a distributor or with the representatives in local heald-medical supply companies.

This section is designed to provide basic information to use to select and purchase or fabricate equipment. Lists of commercial distributors are provided with general information about the types of equipment available through those companies. Resources that can be used to locate plans for making and designing your own equipment are also listed. Types of equipment available are classified into the following categories:

TRANSPORTATION (transportation chairs, strollers, car seats)

ADAPTIVE CHAIRS (wheelchairs and positioning aids)

OTHER POSITIONING AIDS (prone standers, standing boards, sidelyers)

SELF-CARE DEVICES (feeding and self-feeding)

SELECTING EQUIPMENT

Many professionals are available to help select and acquire the appropriate positioning equipment. Physical and occupational therapists are most likely to be familiar with the child's needs as well as the variety of local and national sources for equipment. However, some physicians, nurses, social workers, teachers, and other professionals may be able to help acquire the most beneficial and cost-effective pieces of equipment. There are also often local people who operate medical supply companies who can be helpful with equipment selection. However, some of these individuals may only have access to certain equipment manufacturers and may not be able to acquaint you with all types of available devices.

The quality of manufacture, durability of equipment, and cost should all be considered when selecting equipment. In addition, equipment must be selected on the basis of expected functional use. The cost

of adaptive positioning devices can be very high -- particularly if the selected equipment will perform a variety of functions such as positioning and mobility. Children who will require a piece of equipment for only a short period of time may be able to obtain equipment by constructing the device at home/school or through borrowing equipment if local "lending banks" exist.

Many agencies maintain equipment borrowing services and allow families (or schools) to borrow or rent equipment for the time period needed by the child. Local chapters of parent groups also lend equipment among families to reduce the costs of equipment purchase. Check with local agencies that serve motorically handicapped children (like Easter Seal, Muscular Dystrophy Association, United Cerebral Palsy) and with local parent groups to find out about borrowing or renting equipment. Also check with a physician or social worker about programs that may be available to financially assist in equipment purchase. Many state Bureau of Crippled Chidren's Services, for instance, provide funding for specialized equipment. Social Securiety or Medicaid/Aid to Dependent Children programs also pay full or partial equipment costs. Private insurances may pay full or partial costs through major medical insurance.

Be sure to find out about possible funding sources before you order equipment. Many of these resources have special requirements to qualify for funding. For instance, some programs require physician prescription for equipment. Others may require prior approval before ordering and will not reimburse for already ordered equipment. Still other programs may have contractual relationships with specific providers and will not cover equipment purchased from a non-provider.

Most adaptive equipment for home and school use can be easily made by an individual with some carpentry skills. Many therapists and agencies that serve motor impaired individuals have plans for building a variety of types of adaptive equipment. Some agencies even have resources such as retired individuals, vocational education classes, Bell Telephone Pioneers, and sheltered workshops that help build equipment for individual children. The disadvantages of home-construction often include appearance, durability, and time required for fabrication. However, lower cost may be a significant advantage!

COMMERCIAL RESOURCES FOR ADAPTIVE EQUIPMENT

The following list includes the major distributors of equipment in the United States. The list is not comprehensive and you may locate equipment through a source which is not listed here. In addition, local companies which sell health-medical equipment and products are not listed here but can be excellent resources for equipment. Catalogues are available from each company.

ACHIEVEMENT PRODUCTS FOR CHILDREN

P.O. Box 546
Mineola, NY 11501

Transportation:	Mobility buggy with insert; trunk jackets
Chairs:	Corner floor chairs/trays; pony chairs; wooden toddler chairs/trays
Other Positioning Aides:	Wedges with straps; standing boards
Mobility Aides:	Child crawler
Self-Care:	Feeding, bathing, and toileting aids/devices

ADAPTIVE EQUIPMENT COMPANY

175 Parker Court
Chardon, OH 44204

Chairs:	Bolster chair/tray; corner chair
Other Positioning Aides:	Adaptive harness; standing table; prone board
Mobility Aides:	Prone scooter

CHILDCRAFT EDUCATION CORPORATION

20 Kilmer Rd.
Edison, NJ 08817

Mobility Aides:	Wooden push wagon; Irish mail cart
Adaptive Play & Learning Equipment:	Wooden swing; mirrors; infant-preschool toys

COMMUNITY PLAYTHINGS

Riftin, NY 12471

Chairs:	Floor corner chairs/trays; toddler/preschool adaptive chairs/trays
Other Positioning Aides:	Sidelyer; standing boards; prone boards
Mobility Aides:	Kiddie car; tricycles with attachements; scooters
Adaptive Play & Learning Equipment:	Adjustable Easel/Tables

EQUIPMENT SHOP
P.O. Box 33
Beford, Massachusetts 01730

Chairs:	Tripp Trapp chair; corner floor chairs/trays
Other Positioning Aides:	Standing boards; seat belts
Mobility Aides:	Scooter boards; tricycle adaptations

KAYE PRODUCTS, INC.
1010 E. Pettigrew St.
Durham, NC 27701

Transportation:	Seat inserts for strollers
Chairs:	Bolster chair/tray; corner chairs/tray
Other Positioning Aides:	Prone board
Self-Care:	Prone support potty with table top

J.A. PRESTON, INC.
60 Page Road
Clifton, NJ 07012

Transportation:	Mainstreamer transporter chiar; stroller insert
Chairs:	Wheelchairs; corner chair/tray; floor sitter; hammock chair
Other Positioning Aides:	Wedges; bolsters; feeder seat; sidelyer; standing tables; standing boards; prone boards
Self-Care:	Adaptive equipment for feeding, bathing toileting; dressing; grooming
Adaptive Play & Learning Equipment:	Specialized materials for play and learning; head pointer
Communication Aides:	Head pointer; electronic communication boards
Mobility Aides:	Scooters; Mustang scooter; walkers

FRED SAMMONS
Box 32
Brookfield, IL 60513

Self-Care: Devices for feeding, dressing, grooming

Resources for Plans for Home Construction of Equipment

Many plans for fabricating adaptive equipment devices have most often been passed on from person to person through workshops or inquiries. Some of these plans can be obtained by contacting local agencies serving motorically impaired children. The books included in the listing below in some cases provide descriptions of equipment with illustrations, and in other cases, provide the actual plans. However, all materials illustrate types of adaptive equipment that can easily be constructed.

Connor, F., Willaimson, G., & Siepp, J. Program guide for infants and toddlers with neuromotor and other developmental disabilities. New York: Teachers College Press, 1978.

Chairs: Corner; Pelvic-tilt chair; sawhorse chair

Other Positioning Aides: Prone board; sidelyer

Adaptive Play & Learning Materials: Peg handle grips

Guidelines and illustrations are provided for each piece of equipment. Full instructions for building several pieces are included but are not provided for all equipment described in the book.

Finnie, N. Handling the young cerebral palsied child at home. New York: Dutton, 1975.

Chairs: Box chair; barrel chair; sawhorse chair; hammock chair

Other Positioning Aides: Hammocks; wedges; prone boards

Adaptive Play & Learning Materials: Many suggestions for toy modifications

Mobility Aides: Scooter; tricycle; chair walker.

Golbin, A. (Ed.). Cerebral palsy and communication: What parents can do. Washington, D.C.: Job Development Laboratory, George Washington University, 1977.

Communication:	Head pointer; manual communication boards; simple electronic communication boards

This manual provides good guidelines on positioning for speech acquisition as well as full explanation of alternate communication modes (communication boards, books, devices) appropriate for children with severe motor disorders.

High, E. C. A resource guide to habilitative techniques and aids for cerebral palsied persons of all ages. Washington, D.C.: Job Development Laboratory, George Washington University, 1977.

Transportation:	Transporter chairs; car seats.
Chairs:	Various wheelchairs; corner chair; other chairs
Other Positioning Aides:	Prone boards; standing boards
Self-Care Skills:	Equipment for feeding, dressing, toileting, bathing, and grooming

This manual references both home constructed and commercial materials. Very few plans are provided but illustrations of equipment are clearly drawn and easy to follow.

Robinault, I.P. Functional aids for the multiply handicapped. New York: Harper and Row, 1973.

Transportation:	Trunk support; car seat
Chairs:	Corner; inserts for large chairs
Other Positioning Aides:	Standing board
Self-Care	Communication boards; head pointers; typewriter adaptations

Many new developments in adaptive equipment have occurred since 1973 when this book was written, however, instructions for building and guidelines for using some types of adaptive equipment are still current. The book includes equipment for both children and adults and gives examples of equipment for which better designs are now available. Be sure to check with your child's therapist or teacher before constructing items pictured in this book.

GLOSSARY

GLOSSARY

Abduction (away from midline) - movement away from the midline of the body or a body part as in raising the arms to the side and away from the body, spreading the legs, or spreading the fingers/toes.

Abnormal patterns of movement - forms of movement which are associated with brain damage and which are not observable at any stage of a normal full term infant's motor development.

Adaptive equipment - devices used to position or to teach special skills.

Adduction (to the midline) - movement to the midline of the body or body part or the anatomical position such as closing the fingers/toes or bringing the arms close to the trunk.

Alignment - to bring into a straight line.

Alternate strategy - a strategy for teaching a skill in a way that is different from the typical teaching strategy.

Aspiration - inhalation of foreign substances (such as fluid or dust) into the lungs.

Assessment - to determine abilities to perform skills.

Asymmetry - one side of the body different from the other.

Ataxic - one type of classification of cerebral palsy where balance and fine motor functions such as coordination are impaired.

Athetoid movement (or athetosis) - Uncontrolled and continuous movement associated with cerebral palsy (and other movement disorders) where involuntary writhing movements occur, particularly in the hands and feet.

Atrophy - wasting of the muscles, typically from disuse.

Atypical - unusual or different.

Auditory - anything pertaining to sound.

Automatic movement - a type of movement that is performed without thinking or conscious control and which aligns body parts or restores and maintains balance.

Balance - stability of the body against gravity; equilibrium.

Baseline - a measure of initial performance on a particular task.

Behavior - any action of a person.

Bilateral - involving two sides of the body as in use of both hands together when holding a toy.

Bite response (reflex) - a rhythmical open (bite) and shut (release) movement of the jaw that is not accompanied by hypertonus (high tone); the response is a normal movement in young infants that appears as an early form of "chewing".

Bolster - a long, narrow, rounded pillow or cushion. A pillow rolled over and tied makes a good bolster.

Cerebral palsy - a disorder of posture and movement which results from damage to the brain and which produces atypical postural tone and unusual ways of moving.

Chewing - pulverization of food for swallowing by using tongue lateralization movements and movement of the teeth in combination with rotary jaw movements.

Compensatory movement - a form of movement which is atypical (in relation to normal patterns of movement) and which results from atypical postural fixations.

Consequation - anything that follows a behavior (response). Examples: "good boy" or "no" following something done by the child; a hug following your husband's/wife's compliment.

Contracture - permanent shortening or elongation of muscles which produces limited range of motion at the involved joints.

Coordination - the process of muscles or parts of the body working together to produce smooth movements.

Corner chair - a piece of adaptive equipment which is shaped in a 90 degree angle.

Criterion - a definition of the behavior the child is to do. A criterion should be stated in a very specific way so you can decide whether or not your child does the behavior. This decision allows you to see if your teaching is or is not changing the child's behavior. Example: The child has to walk five steps in a row without help.

Cue - something you do to get the child to behave or respond in a certain way. Cues can be verbal or physical. Examples: verbal cue: "Come here, Tommy." "Put it here, Mary." Physical cue: touching child behind the knee to get the child to lift leg and take a step or guiding child's hand to lift spoon to mouth.

Data - information you collect or gather about your child's behavior. Recording and reading data can help you decide if your teaching programs are working or not.

Deformity - permanent change in the joints of the body which can only be altered through surgical intervention and which can result from imbalance in muscle action in cerebral palsy.

Depression (lowering) - movement which produces a lowering of a particular area in the opposite of elevation. The movement most typically occurs to return the elevated part to the anatomical position (return the scapula to normal alignment) or can occur as an isolated movement in mandibular (or jaw) depression which opens the jaw.

Developmental milestone - a behavior normally seen in most children at a particular time.

Diagnosis - the determination of a condition through examination and consideration of the symptoms.

Diplegia - a distinction in cerebral palsy where the muscles in the legs are more involved than those in the arms.

Distal - farthest from the body trunk as in hands and feet.

Elevation (raising) - movement which produces a raising of a particular area such as scapular elevation or raising (shrugging) the shoulders or mandibular elevation (closing the jaw). The term elevation is always used in combination with the name of the bone which is being moved (scapular) or more generally, in combination with the body area being moved (shoulder elevation or jaw elevation).

Elongation (muscle elongation) - permanent increase in the length of the muscle such that the muscle fibers cannot be returned to optimal length with resultant increased and atypical ranges of motion at the involved joints.

Environment - everything around you - your surroundings - animals, people, weather conditions, all things.

Equilibrium reactions - automatic patterns of body movements which enable restoration and maintenance of balance against gravity.

Extension (straightening) - movement which causes the angle between two adjoining bones to increase as in returning a flexed part to the anatomical position of straightening the knee.

Extremity - a body limb such as the upper extremity (arm) or lower extremity (leg).

Facilitation - techniques which make it possible to move; physical guidance techniques where guidance is specifically provided at postural proximal key points (shoulders, head, hips/pelvis) to normalize tone and promote more normal forms of movement.

Fix (postural fixation) - co-contraction of specific muscle groups to provide a stable base for movement which can result in normal stability or compensatory stability with atypical postural tone.

Flaccid - lacking force or weakness.

Flexion (bending) - movement which decreases the angle between two adjoining parts such as bending the elbow to bring the forearm towards the upper arm or the thigh to the abdomen.

Floppy - hypotonic or with low muscle tone.

Fluctuating tone - changing from one degree of tension to another, i.e., from low to high tone.

Form - way in which the various parts of a movement pattern are arranged in skill sequences, i.e., walking and crawling are two different forms of mobility.

Function - the purpose of muscle patterns of movement, i.e., the purpose of mobility is to go from place to place.

Gag respone (reflex) - an opening of the mouth, with forward movement of the tongue and lowering of the jaw that occurs in response to stimulation on the back half of the tongue; a normal response that protects against obstructions in the mouth that might lead to choking.

Gesture - a physical movement or motion. Examples: Child raises hands to be picked up. Adult moves hand toward body to motion for the child to come to the adult.

Gravity - a force that tends to draw all bodies toward the center of the earth.

Habit (habitual pattern) - compensatory patterns of movement which have been strengthened through non-systematic (intermittent) reinforcement and practice.

Handling techniques - methods of holding or moving children with disturbances in posture and movement.

Head control - ability to bring head in a straight, upright position when tilted in any direction. Mouth should be in a horizontal (across) position, parallel to floor.

Hemiplegia - a type of movement disturbance where half of the body (arm/leg) is primarily involved.

High tone - hypertonia or increased tone.

Hyperextension (straightening past neutral or 180 degrees) - movement which increases the angle between two adjoining parts past a straight position (180 degrees) or past the posterior plane of the body.

Hypertonicity - increased tension in the muscles which produces atypical postural fixations and limited range of motion.

Hypotonicity - decreased tension in the muscles which produces atypical postural fixations, excessive range of motion passively, and inability to move against gravity.

Imitate - to copy; to do as someone else does.

Independent(ly) - without assistance or support. Used in teaching programs to show that child is to do something alone with no additional help.

Inhibition - physical guidance techniques where guidance is specifically provided at postural proximal key points (shoulders, head, hips/pelvis) to decrease tone and eliminate atypical patterns of movement.

Involuntary movements - accidental or unintentional movements that are not performed by choice.

Jaw retraction - a pulling back of the lower jaw away from alignment with the upper jaw such that the upper teeth appear to be protruding.

Jaw thrust - a strong downward depression of the jaw accompanied by forward movement (protraction) and increased postural tone.

Lip retraction - movement of the lips upward and away from the teeth such that the lips are drawn into a tight horizontal line.

ow tone - a term often used in place of hypotonia or decreased tension in the muscles.

Midline - the middle of the body from top to bottom. Imagine a line drawn from the top middle of the head, over the nose, and down the middle of the body.

Mobility - capability to move or to be moved, i.e., movement of a body muscle or body part or movement of the whole body from one place to another.

Motivate - to encourage, to make child want to do something.

Movement patterns - organization of components of muscle action required to produce various forms of total movement including normal, primitive, compensatory, and abnormal forms which result in a change of position of the body as a whole or of an extremity (arms or legs).

Muscle strength - amount of power of the muscle fibers in relation to contraction of the muscles under varying conditions of resistance, typically rated as good, poor, fair, trace, zero.

Muscle weakness - decreased power of the muscle fibers in relation to various conditions of gravity and with ratings of fair or trace.

Muscle tone - degree of tension in the muscles at rest or under conditions of movement.

Neurodevelopmental treatment (NDT) - a form of treatment of children and adults with disturbances in posture and movement that was developed by Dr. Karel and Mrs. Berta Bobath and which relies on facilitation and inhibition techniques used when handling and when teaching movement skills.

Normalized tone - postural (muscle) tone which has been made more normal through use of procedures which alter tone states.

Objective (goal) - what it is we want to teach. Example: Objective (goal) is to teach child to walk without help.

Oral-Motor Coordination - interaction of the muscles of the neck, lips, tongue, cheeks, and jaw to produce smooth movement in eating and phonation.

Orthopedic conditions/problem - specific problems which involve the bones, joints, and muscles of the body and that include deformities such as scoliosis (spine) or hip/shoulder dislocations.

Pathological - due to or involving abnormality.

Patterns of movement - the combination of various muscle contractions in order to move a body part in space or to accomplish a particular objective.

Pelvis - a bone which forms the hips or the area of the body below the trunk and above the legs.

Perform - to act; to do.

Phonation - the production of sounds.

Physical guidance - a training (or teaching) procedure where the required movement is produced by physical manipulation by another person.

Physical therapy - a method of treatment which assists the individual to perform movement as normally as possible.

Positioning - ways of placing an individual that will help to normalize postural tone and facilitate normal patterns of movement and that may involve the use of adaptive equipment.

Postural tone - the degree of tension in the muscles with the body at rest and when actively moving.

Pre-requisite - something required or needed before going on to something else. Used in teaching programs to show that certain programs or activities should be done or the child should have certain skills or behavior before teaching a new program or activity.

Present - to show or to offer. Used in teaching programs to direct teachers to show something visually to the child or give something to the child.

Primary movement - a simple form of movement where the movement itself occurs because the consequences to the movement are unusual and interesting to the child.

Primitive patterns of movement - patterns of movement which are present in motor development of a normal full term infant but which are prolonged past the typical time of disappearance or integration.

Prompt - same as cue. See cue.

Pronation - movement which posteriorly rotates the forearm to that the palms are down or away (not visible) is the inverse of supination. Pronation is an inward rotation of the forearm.

Prone board - a piece of adaptive equipment on which the child is placed in a supportive standing position with support provided on the frontal surface of the body, i.e., prone stander.

Proprioceptive - relating to sensations produced in the muscles and muscle tendons of the body.

Proximal - situated nearest the center of the body, i.e., closest to the trunk.

Quadraplegia - involving all four body segments, i.e. arms and legs, where typically the motor involvement is greatest in the legs.

Range of motion - the amount of motion present in each joint of the body under conditions of passive movement of the body part (passive ROM) or of active movement produced by the individual (active ROM).

Reflex - stereotypic posture and movement that occurs in relation to specific eliciting stimuli and outside of conscious control.

Regurgitation - the return of partially digested food to the mouth from the stomach.

Reinforce - to follow a behavior with something (a consequence) which strengthens that behavior or makes it more likely to occur again. A reinforcer is one of these consequences. Examples: praise, touches, favorite activities, money, food. Reinforcement is the use of this procedure of presenting a positive consequence after a desired behavior has occurred. It should be used immediately after and only if the desired behavior (not undesirable behavior) has occurred.

Resistance - a force that retards or hinders movement.

Respiration/phonation - coordination of the respiratory mechanisms and oral-motor coordination to produce speech sounds.

Response - any action (behavior) of a person. A correct response occurs when a child acts or does the behavior (response) you are trying to teach (what it is you want her/him to do).

Righting reactions - non-consciously controlled movements which right the body in space and/or the body parts in relation to each other, e.g. head righting, body righting.

Rigid - a conditon of increased postural tone (hypertonus) which prevents any movement at all and in which the individual's body is very stiff and difficult to move by another person.

Rooting reaction - a turning of the head toward a tactile stimulus given at the corners of the mouth (or cheeks) and at the upper and lower lip; the response is a normal "nourishment seeking" behavior present in young infants.

Rotation (around) - movement around the central axis such that the anterior surface of the bone moved inward is called inward rotation or internal rotation and the anterior surface moved away from the anatomical position is called outward rotation or external rotation. Medial (inward) rotation and lateral (outward) rotation are lesser used terms, but describe movement in relation to body surfaces/planes.

Shaping - a procedure used to teach new behavior. The child is reinforced for doing activities that are closer and closer to the final goal or desired behavior. Example: Child is reinforced (gets food) at first for merely grasping spoon. Later, child must grasp spoon and move it toward mouth one inch (2.5 cm) before food is given. Later s/he has to grasp spoon and bring it up two inches (5.2 cm) toward mouth before being reinforced. Finally the child must grasp spoon and bring it to the mouth without help to get the food (reinforcer).

Sidelying - a position in which the individual is placed on a surface on either the right or left side.

Spasticity - increased muscle tone (associated with presence of a stretch reflex) or stiffness; pathological hypertonus.

Stability - the co-contraction of muscles to hold the body against gravity and/or to hold the joints in place to allow movement at other joints.

Stiff - a term used to describe spasticity or increased postural tone (hypertonus).

Strategy - a method or technique; a plan or action used to do something. Used to refer to specific methods of teaching.

Sucking - a movement of the lips and tongue where negative pressure builds up in the oral cavity as a result of lip closure and where tongue movement consists of a raising and lowering of the tongue.

Suckling - a rhythmical movement of the tongue in a forward/backward action that is used to take liquids from the bottle or food from a spoon where the suckle is accompanied by swallowing in a suck-swallow-suck-swallow movement chain.

Supination - Movement of the forearm is most often described using this term which is less frequently used for other body areas. Movement which anteriorally rotates the forearm such that the palms are up or out is an outward rotation described as supination.

Symmetrical - both sides equal in comparison in size, posture, color, movement, or other variables.

Task analysis - the process of breaking a behavior into its small parts.

Tightness (muscle tightness) - decreased elasticity in a muscle or group of muscles that produces limited range of active movement but that can be stretched to full length passively.

Tongue lateralization: movement of the tongue to the sides of the mouth to push food under the teeth and to hold food under the teeth for chewing.

Tongue retraction: a strong pulling back of the tongue into the back of the oral cavity with stabilization against the hard palate.

Tonic Bite Reflex - an obligatory response of the jaw of strong closure (accompanied by increased postural tone) in response to stimulation of the teeth or gums.

Transporter chair - a piece of adaptive seating equipment that can be used as a "car seat" to transport a child safely.

Trial - a try, a test, an opportunity. Used in teaching to refer to each time you present the cues and materials to your child to teach a particular behavior. Usually what the child does (correct or incorrect response) is recorded after each trial.

Trunk (of body) - the body, not including the head and the arms and the legs.

Trunk control - ability to bring body in a straight, upright position when tilted in any direction.

Vestibular - relating to sensations produced in the semicircular canals of the ear which relate to balance and posture.

Visual - having to do with sight or seeing. Used in teaching programs to refer to use of the eyes.

Voluntary movements - movements that are produced under the conscious control of the individual.

Wedge - a piece of adaptive equipment, a pillow, that is used to help the individual be positioned in proper body alignment.

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